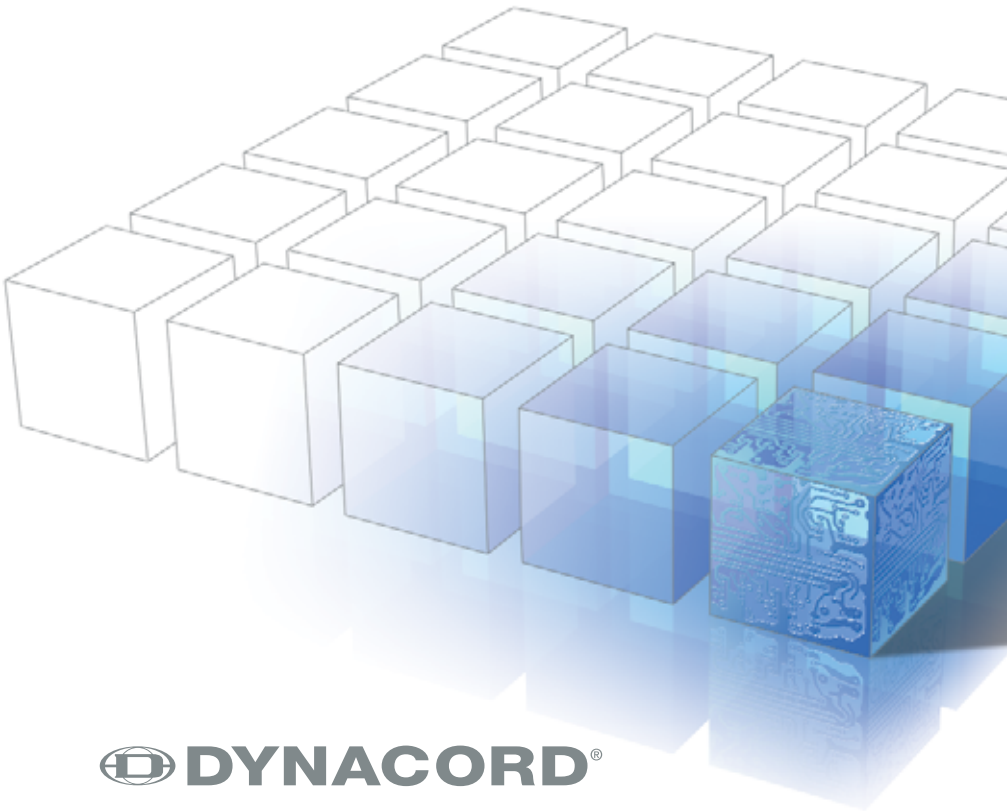
fixed installation electronics

first-class performance | absolute reliability | flexibility



DYNACORD®

ENGLISH

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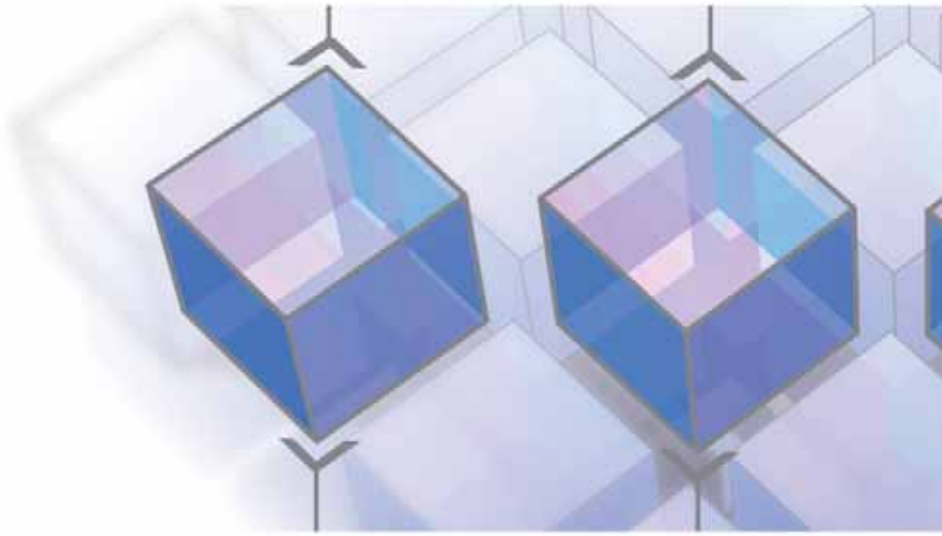

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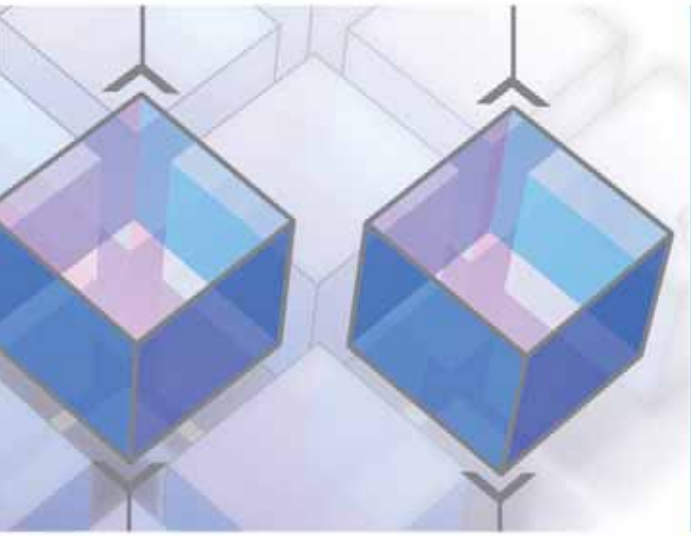
Introduction



For 60 years now, DYNACORD has been a leading manufacturer of professional audio providing innovative, high-quality sound solutions for a comprehensive range of applications. Made in Germany, DYNACORD products deliver world-class audio performance with superior reliability and maximum flexibility.

The DYNACORD **PROMATRIX®** System is a versatile, extensive product range for a wide variety of installation applications including professional sound reinforcement, multimedia, and audio networks.
Developed for the demanding world market the German-made DYNACORD **PROMATRIX®** System has proven a huge success in more than 7,000 installations since its introduction in 1998.

Applications:

DYNACORD sound reinforcement systems are suitable for the widest possible range of applications such as hotels, airports, cruise ships, industrial complexes, hospitals, shopping malls, sports facilities, multi-purpose halls, restaurants, schools et al.
(additional information at www.promatrix.de)

DYNACORD Support:

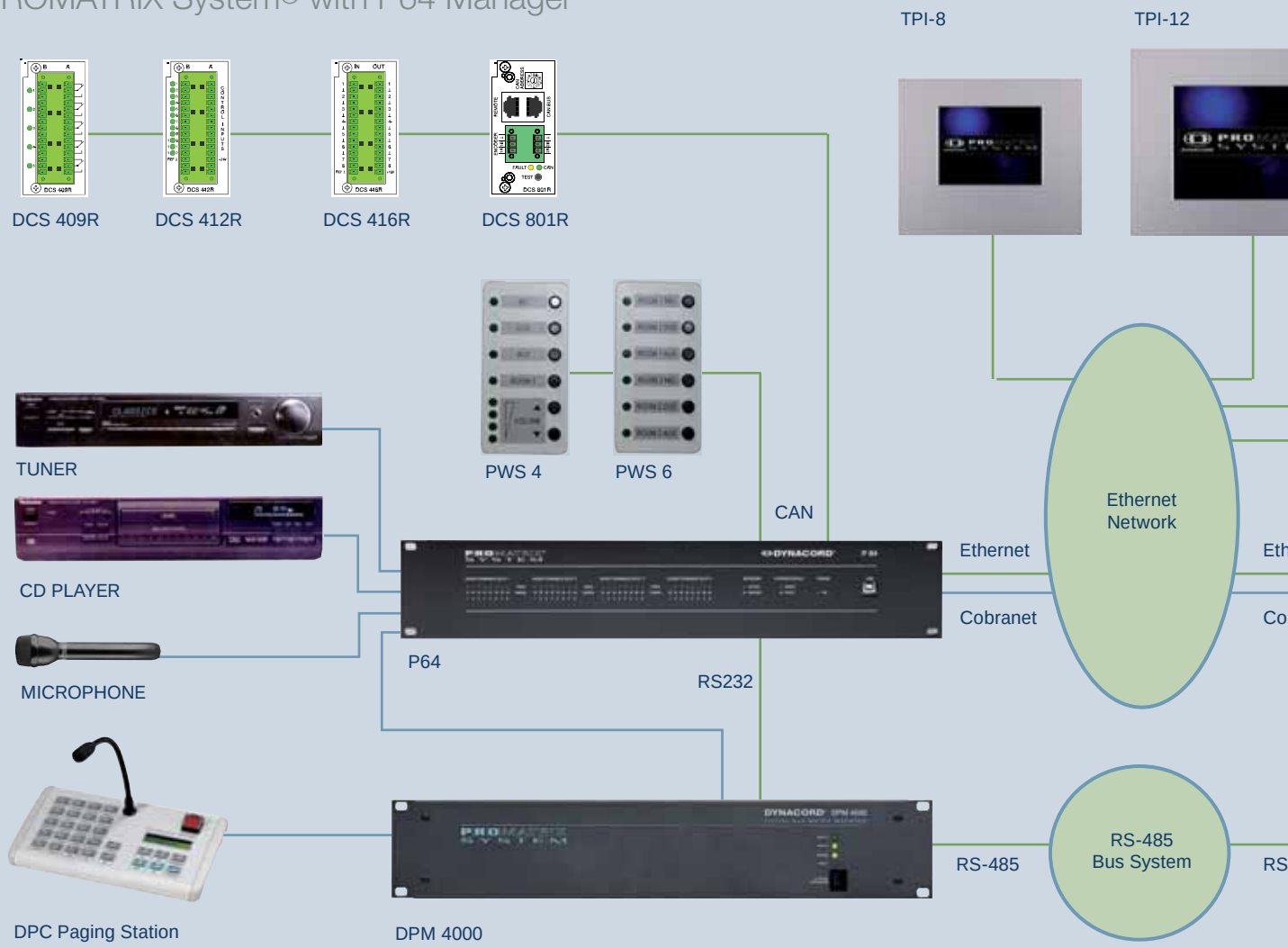
Apart from high-quality products, DYNACORD also provides the necessary know-how for custom solutions, competent support and efficient distribution. In close cooperation with system contractors all over the world, DYNACORD engineers and distributors design optimum custom installation solutions without compromise.

At DYNACORD, customer satisfaction comes first.

The DYNACORD Benefits:

- paging system conforming to EN 60849 / VDE 0828 standards
- international safety certificates
- approved by the German Federal Railway Office EBA
- no-compromise audio performance
- “Made in Germany“ – superior, controlled quality
- flexibility, reliability and extreme operational safety
- conformity to all environmental standards (e.g. RoHS)
- excellent distribution, support and servicing
- extensive, authorized and well-trained dealerships
- experienced engineers to provide professional project planning and realization
- ISO-9001 certified

PROMATRIX System® with P64 Manager



The digital **PROMATRIX®System** for professional sound reinforcement, audio networks and multimedia includes the main components

- **P64** matrix manager
- **IRIS-Net™** system software
- PWS Programmable Wall Stations
- TPI Touch Panel Interfaces
- DPS 4000 Digital Paging System.

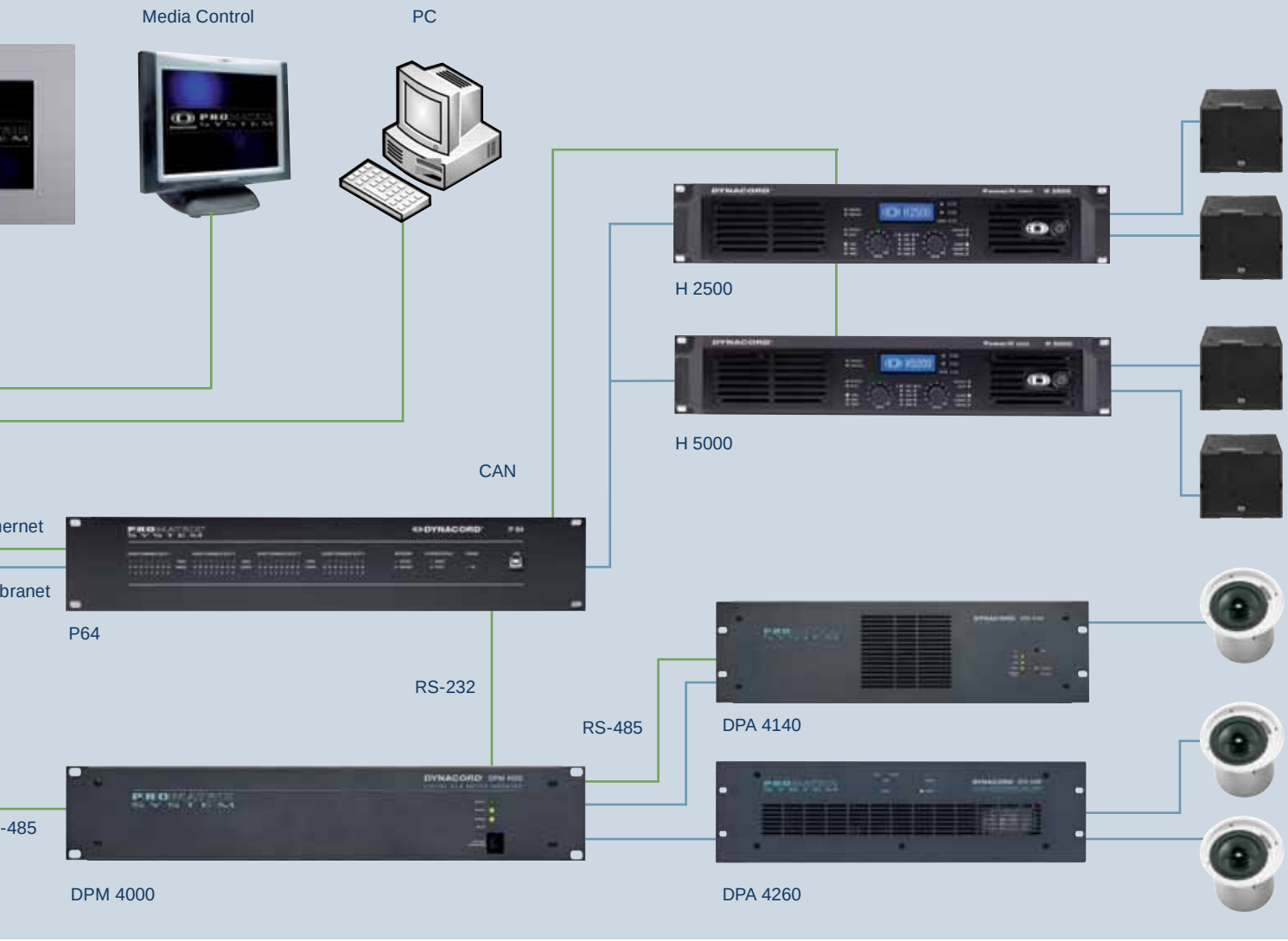
The central system unit **P64** Matrix Manager accommodates input and output module slots to connect microphones, mixing consoles, DVD and MD players, tuners, etc., and power amplifiers. Multiple **P64s** are easily linked via Ethernet (copper or glass fiber) to set up large audio networks.

Serving as the control software for the entire system **IRIS-Net™** provides individual component configuration and easy integration of **IRIS-Net™** capable power amplifiers.

Due to its open architecture, **IRIS-Net™** facilitates the incorporation of PCs or an already existing media control into the system.

The PWS-series programmable wall stations mainly allow the selection of audio sources and presets also providing volume control. Two models are available:

- PWS-4 Programmable Wall Station, 4 keys + 2 volume keys
- PWS-6 Programmable Wall Station, 6 keys



TPI touch screens provide a most convenient system control due to **IRIS-Net™** capability.

They are available in two sizes and individually configurable for all applications:

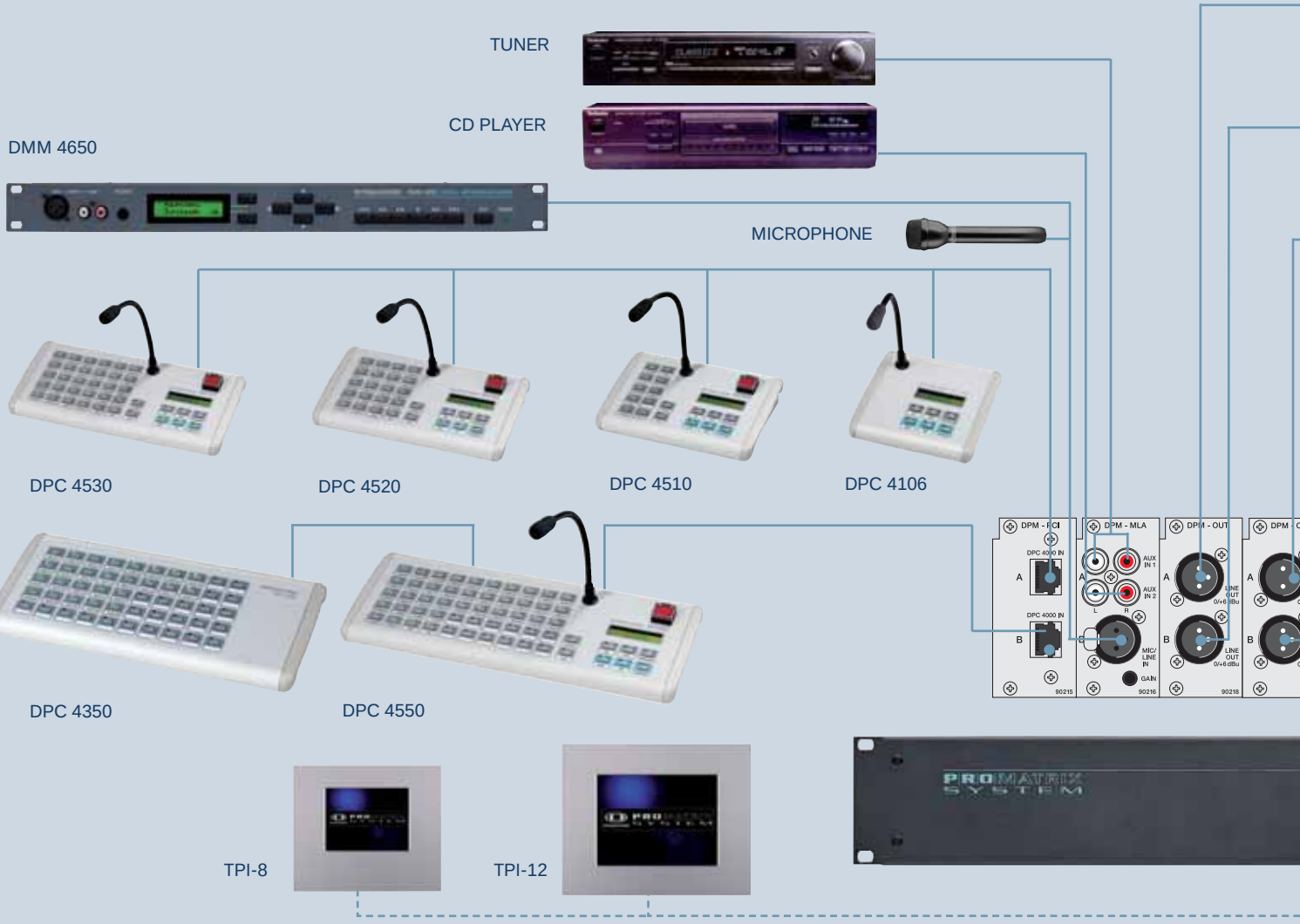
- TPI-8 Touch Panel Interface, 8.4“-display
- TPI-12 Touch Panel Interface, 12.1“-display

For paging applications conforming to EN 60849 and DIN VDE 0828 standards, a DPS 4000 system is incorporated, comprising the main component groups

- **DPM 4000** Matrix Manager
- DPA 4000 Power Amplifiers
- DPC 4000 Paging Consoles
- DCS 400 Control System.

The **DPM 4000** directly communicates with the **P64**, controlling all announcement and paging functions.
Multiple **DPM 4000** units can be linked via an RS-485 network.

A DCS 400 Control System can be connected to a **P64** (via DCS 801R) or **DPM 4000** (via DCS 401/DCS 401R) extending the control functions of both logic and analog inputs and outputs, audio routing, et al.



The digital **PROMATRIX®System DPS 4000** for professional sound reinforcement includes six component groups:

- PROMATRIX Manager DPM 4000
- PROMATRIX Amplifiers DPA 4000
- PROMATRIX Paging Consoles DPC 4000
- PROMATRIX Message Manager DMM 4650
- PROMATRIX Power Supplies DPP 4000
- PROMATRIX Control System DCS 400

The central system unit **PROMATRIX® DPM 4000** manager accommodates analog input module slots to connect paging and mixing consoles, microphones, CD and cassette players, tuners, et al.

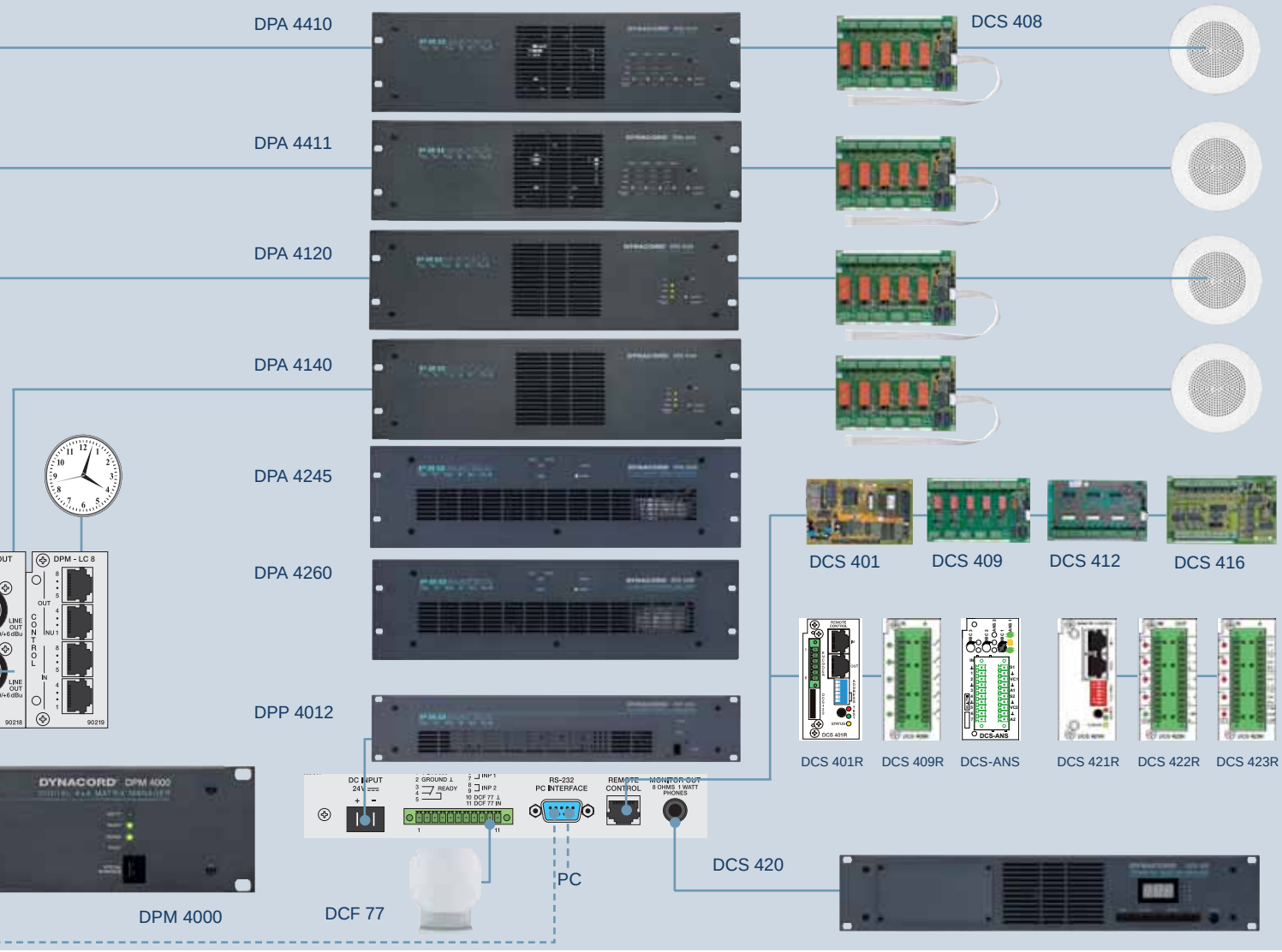
18-bit AD converters feed the signal to the digital audio matrix. The DPA 4000 series power amplifiers are then connected to the 20-bit DA-conversion output modules while the **DPM 4000** control functions are governed by an 8 x 8 logic control matrix.

DPA 4000 series power amplifiers are the “motors” of the **PROMATRIX®System**, available in six versions:

- DPA 4410 4 x 100 watts
- DPA 4411 4 x 100 watts with Remote Control
- DPA 4120 1 x 200 watts, optional Remote Module
- DPA 4140 1 x 400 watts, optional Remote Module
- DPA 4245 2 x 450 watts
- DPA 4260 2 x 600 watts

The **PROMATRIX®System** paging consoles come with a variety of features:

- DPC 4106 6 function buttons, LCD
- DPC 4510 8 function buttons, 10 select buttons, LCD
- DPC 4520 8 function buttons, 20 select buttons, LCD
- DPC 4530 8 function buttons, 30 select buttons, LCD
- DPC 4550 8 function buttons, 50 select buttons, LCD
- DPC 4350 expands paging console functions by 50 select buttons



A micro controller governs all paging console functions. The select buttons are freely configurable, e.g. for individual circuits, group calls or internal and external control and special functions not necessarily related to sound reinforcement.
This provides complete system control from selected paging consoles with status display and automated routines to facilitate operation.
By experience, emergency situations put a lot of pressure on the operators of complex systems often resulting in delayed reaction and false moves. The DYNACORD **PROMATRIX® System** greatly helps reducing such stress, thus minimizing the chances of operational faults.

The **PROMATRIX®System** is completed by the

- DMM 4650 Message Manager

a signal processor for digital recoding and reproduction of speech and music that also generates chime and alarm signals. The DPP 4000 series power supplies have been especially designed for the entire **PROMATRIX®System**.
They provide intelligent power management such as uninterrupted mains / battery switching, standby switching for extended battery operation, automatic power-up at the presence of priority signals and many other features.

These two models available are:

- DPP 4004 24 V / 4 A
- DPP 4012 24 V / 12 A

The **PROMATRIX®** Control System DCS 400 family of modules has been engineered to create complete system racks embracing all control functions:

- DCS 401, DCS 401 R Control Module
- DCS 408, DCS 408 R Relay Module 100 V
- DCS 409, DCS 409 R Control / Audio Relay Module
- DCS 412, DCS 412 R Logic Input Module
- DCS 416, DCS 416 R Analog Input / Output Module
- DCS 420 Monitoring Module
- DCS 405 R Extension Module
- DCS 406 R Shielding Module
- DCS 407 R Audio Relay Module
- DCS 421 R Emergency Control Module
- DCS 422 R Audio Input Switching
- DCS 423 R 100 V Relay Switch
- DCS ANS Automatic Volume Control

IRIS-Net™

IRIS-Net™ is the integrating software platform of remote-controlled DYNACORD systems and components to configure and supervise complete audio setups with multiple components on a central operating surface.

Already supporting Ethernet, CobraNet™, CAN-Bus, RS-232, GPIOs, USB, **IRIS-Net™** is open for future implementations. Amplifiers, loudspeakers, cable connections and interfaces all are supervised by **IRIS-Net™**. System status is queried continuously, fault conditions are recognized and reported while a protocol lists incidents by date and time. Parameters and system component settings can be saved and recalled by just a key stroke. The software provides application-based, user-designable control panels, the programming of automatic routines and configuration of components and functional groups. For several years now, hundreds of audio systems and installations have been profiting from **IRIS-Net™** control.

IRIS-Net™ has proven its efficiency in numerous high profile events such as the recent soccer World Cup in Germany (6 stadiums), the “Houston Rodeo 2005“, Kenny Chesney’s “Somewhere In The Sun“-tour and the worldwide “Live 8“.

IRIS-Net™ provides a complete set of tools for real-time control and monitoring of an audio system down to such details as signal and transducer levels, component temperature, output current and voltage, also indicating fault conditions. A useful feature is the One-Button Check that provides the user with a detailed overview of the entire system’s operational status in less than a minute.

The core of **IRIS-Net™** is based on a drag-and-drop surface which is customizable with a GUI element library of faders, LEDs, meters, buttons and displays. The function and behavior of these are also customizable. In addition to the on-board control elements, custom graphics and text boxes allow a programmer to develop an effective control surface that is easy to operate, regardless of the user’s technical knowledge.

Implementation of GUI layers provides additional customization and system security. Up to 32 layers can be created within an **IRIS-Net™** project to allow a variety of control and monitoring options for multiple users, each with a unique password and access to their specific layers only. This allows the programmer to create a control surface that is specific to the needs of any, and all, operators of the system.

For example, the system administrator has access to system configuration and all DSP functions, while other users may access their individual, password-protected layers only permitting preset recall but preventing them from changing critical details such as crossovers and limiters.

IRIS-Net™ is an open architecture platform for current and future products and systems. New products are added to the **IRIS-Net™** shell via .DLL files which are integrated with the **IRIS-Net™** core.

The range of **IRIS-Net™**-controllable products by Electro-Voice, DYNACORD, Klark Teknik and Midas will be expanded continuously.

Moreover, **IRIS-Net™** is designed to be used by a variety of third party hardware to control and monitor any type of product or subsystem needed in a typical audio system.

IRIS-Net™ is able to run an impedance sweep of all components connected to an amplifier, including connectors, cable, crossover networks and transducer and then store a reference measurement of the system as it exists, in a given configuration and environment. This reference can be exported to an external control PC for future usage while user-definable tolerances can be applied to customize system supervision for specific applications. The software compares the reference to a real-time measurement, alerting the operator when tolerances are exceeded.

Further **IRIS-Net™** advantages are shorter installation times and a quicker system start-up compared to other manufacturers’ conventional equipment.

The comprehensive **IRIS-Net™** control and monitoring functions reduce rack installation and system setup times.
The One-Button System Check immediately indicates faulty connections and components, even predicting possible driver failure – worldwide a unique feature!

In addition, **IRIS-Net™** permits the recall of presets optimized for DYNACORD loudspeakers providing acoustic excellence straight from system power-up.
During measuring, the system is matched to the room acoustics via the necessary filters and DSP blocks in real time further optimizing an already outstanding performance.

All this time-saving significantly reduces setup cost while the comprehensive, complex monitoring functions of **IRIS-Net™** provide maximum system safety with a fully customizable GUI.

The following application examples illustrate the impressive versatility of **IRIS-Net™**.

Stadium, Arena, Multi-Purpose Hall

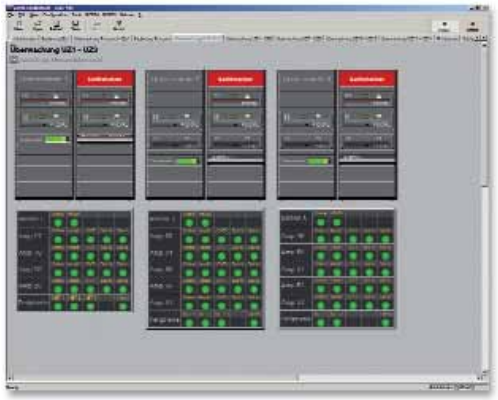
The user interfaces configured in **IRIS-Net™** provide system control matched to both, event and the audience.

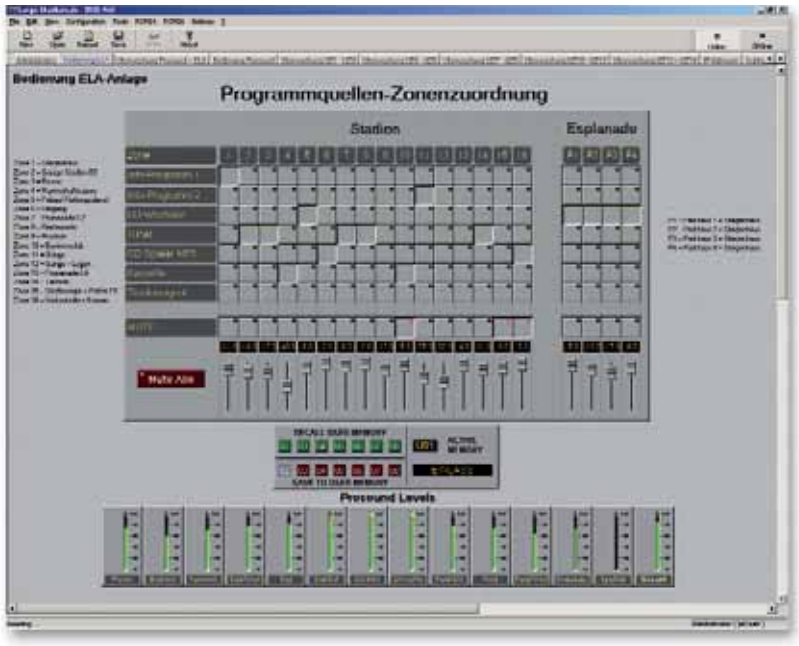
Galleries and stadium sectors can be switched on and off individually with independent volume levels. Amplifier racks and loudspeaker clusters are displayed as green LEDs.

A change to red requires a few mouse clicks to query all system parameters for analysis, and the cause is detailed in seconds only.

In the example shown (World Cup stadium), IRIS-Net™ is used to assign various program sources in a matrix function, the**PROMATRIX® System** providing a single operating surface for both the paging and sound reinforcement systems.

DYNACORD is the first and currently only manufacturer worldwide to offer this combination meeting EN 60849 standards, due to the uniqueness of the **PROMATRIX®System**.





Yacht, Ferry, Cruise Liner

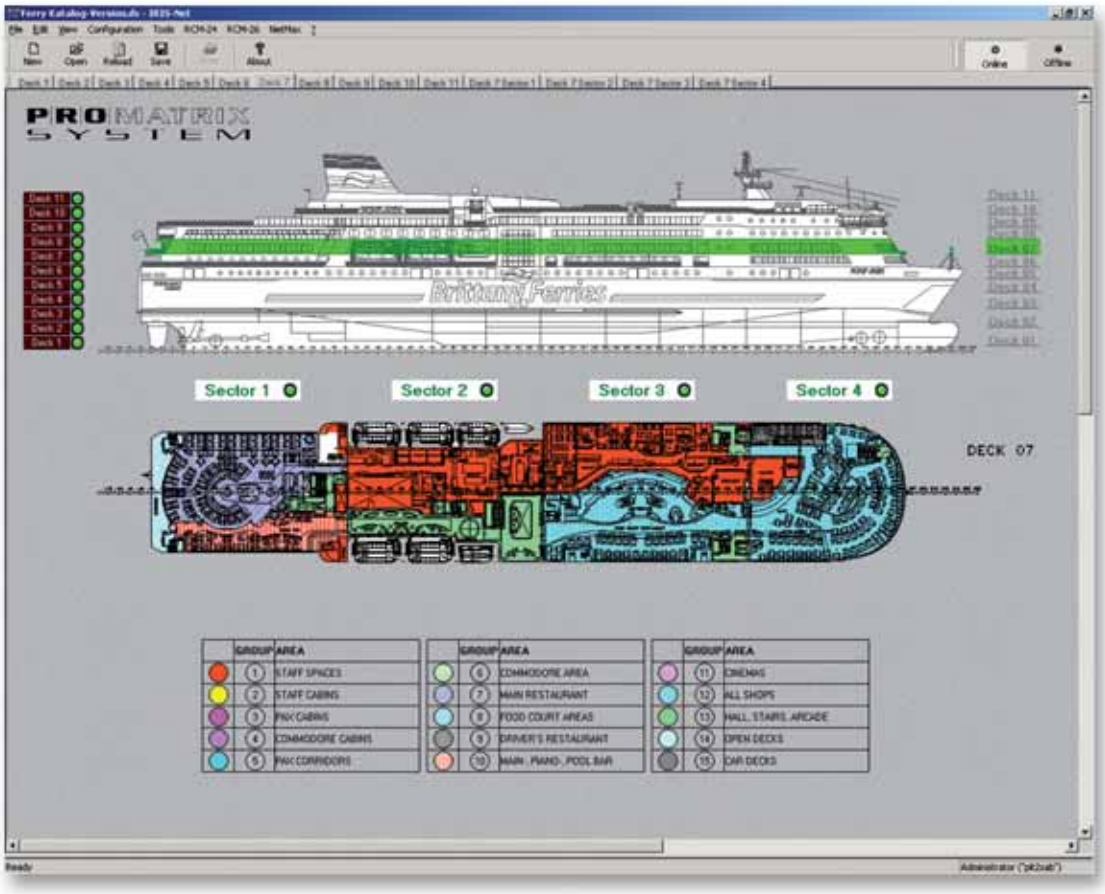
For decades, DYNACORD has been the equipment of choice on countless yachts, ferries and cruise liners.

Now, the advanced control and monitoring functions of the **PROMATRIX®System** and **IRIS-Net™** are setting new standards.

Besides supervising existing audio components the **IRIS-Net™** GUI permits incorporation of third party components and systems.

The DYNACORD **PROMATRIX®System** allows the control of lighting and projection equipment, the opening and closing of doors etc. while **IRIS-Net™** provides the operator with a graphic status display.

Fault conditions are shown on the affected deck while zooming in analyzes cause and effect in detail.

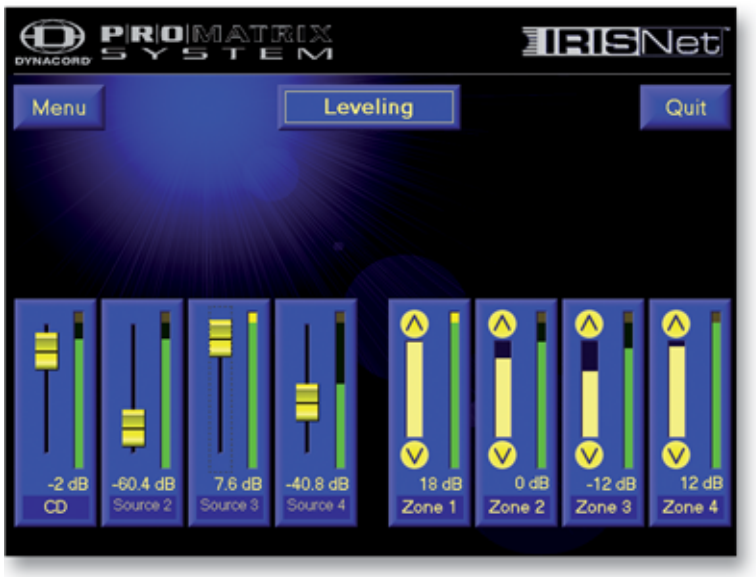


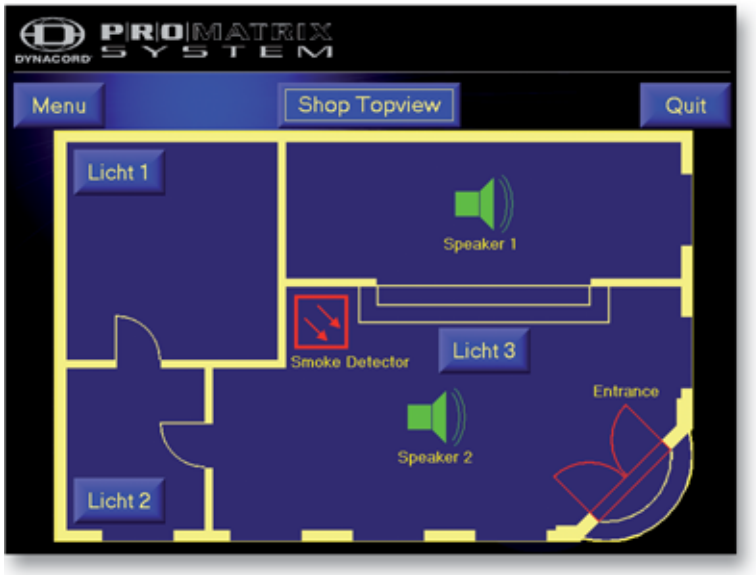
Department Store, Show Room, Boutique

In conjunction with **IRIS-Net™**, the **PROMATRIX® System** permits the configuration and setup of media control and management systems.

In the application shown, the touch panel transforms into a PC call station when combined with a microphone. In the “status” layer, the logic inputs and outputs are managed, and scene presets are loaded and performed.

The “leveling“ and “routing“ layers provide adjustment of the sound reinforcement system, while individual departments, for instance, can be displayed and controlled in a “ground plan” layer – the **PROMATRIX®System** is all you need.





P64

The **P64** Matrix Manager is a modular, networkable and freely configurable audio system for complete solutions.

The **P64** integrates the components between audio sources and amplifiers as DSP modules. System configuration, operation and supervision and the DSP modules are managed by the IRIS-Net™ platform (Intelligent Remote & Integrated Supervision).

The **P64** serves as central unit of the **PROMATRIX®System-** providing up to 32 audio channels, mixing and matrix functions, signal processing and additional control and monitoring functions. Multiple **P64s** can be linked via Ethernet, creating a large decentralized audio system.

The **PROMATRIX®System** also controls power amplifiers equipped with compatible remote modules and monitors the connected loudspeakers.
Major applications are professional audio installations and complex sound reinforcement systems in larger buildings where unique, custom solutions are required. Innovative features and extreme flexibility make the DYNACORD **PROMATRIX® System**the natural choice among paging, EVAC and ProSound systems as well as audio networks and AV.

A **PROMATRIX®System** meets every demand of a paging system. All audio connections, interfaces and processor functions are monitored permanently, and fault conditions are immediately detected. Redundant networks can be easily created due to the CobraNetTM audio data transmission standard.

Comprehensive DSP Hardware Platform
The P64 is an extremely flexible audio controller in a 2U housing developed for a wide variety of applications. Unrestricted combinations of I/O cards provide custom configuration of the **P64**.

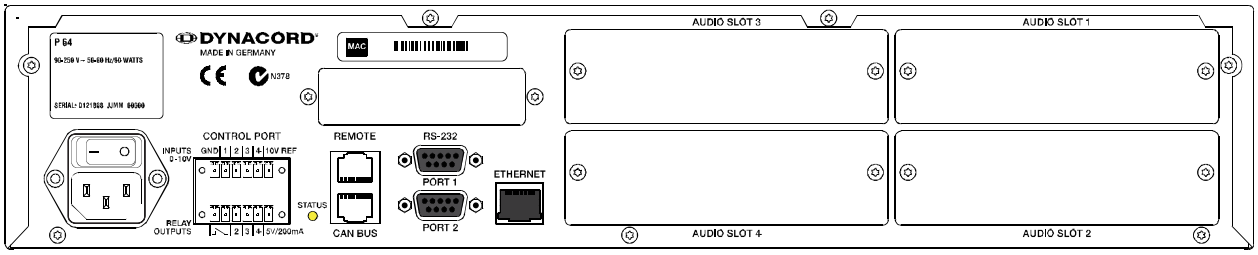
With the optional CobraNet™ module, a maximum of 32 digital audio channels is available.
Superior Audio Performance

The **P64** Matrix Manager delivers the exceptional performance typical of DYNACORD with outstanding dynamics. State-of-the-art A/D - D/A conversion technology and sophisticated processing algorithms ensure natural, transparent sound reproduction.

Expandable Processing Power up to 1000 MIPS per Unit
The **P64** DSP power can be increased by an additional DSP-1 processor module – a big advantage for future system extension. For complex applications and audio signal processing, a “super-matrix“ can be created by combining multiple **P64s** in a network.

Universal Interface to the Outside World
The **P64** can be configured by a web server connected to **IRIS-Net™** via Ethernet, RS-232 interface or USB.

The integrated CAN bus permits communication of the **P64** with compatible **IRIS-Net™** components. Using the GPIO network (optionally the DCS system) increases flexibility by controlling external units and systems via simple logic signals.



The GPIO network and the incorporation of external units are, of course, easily visualized on the **IRIS-Net™** GUI.

Beyond Audio Processing

The combination of **DPM 4000** and **P64** allows setting up large life safety systems (e.g. in airports, subways, stadiums etc.). The mixed application combining paging and sound reinforcement in a single **IRIS-Net™** system interface meets the EN-60849 standard and is a worldwide first. unique.

The **P64** also includes various control and logic functions. Complex operations can be condensed to macros allowing multiple functions to be summed in a single preset scene which can be changed manually or automatically, and recalled any time.

Time and calendar control provide programming of singular and repetitive sequences; annual, monthly, weekly, daily, hourly intervals and even shorter periods are selectable.
Event control provides reaction to specific occurrences.
System conditions can be configured, and all parameters are easily changed by a flow chart or by pressing a button.

Complete System Supervision

Fault conditions of individual components and within the complete system are automatically detected, indicated on the PC screen and reported to external stations, if necessary.

In conjunction with a **DPM 4000**, incidents and fault conditions can be shown in the **DPM 4000** respectively the DPC call station display.

An internal log file records user-defined incidents with date and time to be read out and printed if. The P64 also supervises **IRIS-Net™** capable amplifiers and the connected loudspeaker systems by precise impedance monitoring (“system check“).

Typical Applications

Subways, stadiums, multi-purpose venues, concert halls, hotels, yachts, cruise liners, airports, theme parks, casinos, industrial buildings, theaters, AV installations and many more

Accessories

The range of optional accessories available for the **P64** manager includes wall panels, touch panels, the DCS control system and more to customize your setup.

P 64 General Device Description and Important Features	
P64 Matrix Manager	Modular Matrix Manager incl. signal control and signal routing, system control and -monitoring
Audio	32 audio channels 4 audio slots, modular. 8-channel input- and output slots, analog or digital
Network	module Slot for optional CobraNetTM interface 32 I/O audio and control
Safety / Redundancy	Internal monitoring, system surveillance, watchdog-switch, fault logic output, redundant audio networking possible
PC Configuration and Control Software	IRIS-Net – Intelligent Remote & Integrated Supervision: integration of P64, remote amplifiers, peripheral control configuration, control and monitoring of complete audio network Freely programmable user control panels und access codes
Power Supply	100…240 V AC, 50 / 60 Hz
Power Consumption	90 W max. (incl. 2 x AI-1, 2 x AO-1, 1 x CM-1 Module)
Safety Class	I
Cooling	left to right, 3-level fan
Operating Temperature Range	0°C…40°C
Dimensions (w x h x d)	483 x 88.1 x 381 mm, 19” / 2 HE
Weight	P64 (without optional modules): 7.35 kg
Frequency Response	20 Hz…20 kHz (- 0.5 dB)
Signal to Noise ratio (A-weighted)	P64 analog In to analog Out: 115 dB
THD+N	< 0.005 %
Signal Delay	P64 analog In to analog Out: 2.2917 ms
Crosstalk	< -110 dB @ 1 kHz

Signal Processing	
Sample Rate	48 kHz internal 32 kHz – 192 kHz external
Data Format	24 Bit linear A/D und D/A conversion, 48 Bit processing
Signal Processing	2 DSPs Standard (150 MHz, 300 MIPS) 1 DSP per audio module (100 MHz, 100 MIPS)

Interfaces	
Ethernet	10 / 100 MBit/s, RJ-45 (PC control)
CAN	10…500 kBit/s, 2 x FJ-45 (remote amp control)
RS-232	2 Ports, 9 pin D-Sub female (remote control)
USB	USB Type B on Front Panel (PC control)
GPIO Control Port	2 x 6-pole Euro block 4 Control Inputs (analog 0…10 V / logic control) 3 Control Outputs (Relay contact to ground) 1 Fault Output (NC Relay Contact) 3 Reference Outputs (+ 5 V / + 10 V / GND)

Analog Input Module AI-1

The **analog input module AI-1** has got 8 analog audio inputs which serve for connecting devices with line level. The inputs are electronically balanced.

AI-1

Specifications	AI-1
Connectors	8 x 3-pole Euro block connectors
Nominal Input Voltage	+ 6 dBu / 1.55 V
Max. Input Level	+ 21 dBu / 8.7 V
Input Impedance	20 kOhm
Common Mode Rejection	> 70 dB
A/D Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N) (A-weighted)	117 dB
THD+N	< 0.005 %
Signal Delay	1.3958 ms
Weight	200 g

Microphone Input Module MI-1

The **microphone input module MI-1** has 8 analog audio inputs which connect microphones or devices with line level.
The inputs are electronically balanced with individually switchable phantom power.

MI-1

Specifications	MI-1
Connectors	8 x 3-pole Euro block connectors
Nominal Input Voltage	+ 6 dBu / 1.55 V
Max. Input Level	line: + 21 dBu / 8.7 V mic: + 39 dBu / 69 V
Input Impedance	line: 8 kOhm mic: 2 kOhm
Common Mode Rejection	line: > 60 dB (1 kHz) mic: > 70 dB (1 kHz)
Phantom Feed	+ 48 V / 10 mA, switchable per channel
A/D Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N)	(A-weighted) 118 dB
THD+N	< 0.005 %
Signal Delay	1.3958 ms
Weight	250 g

Analog Output Module AO-1

The **analog output module AO-1** has eight analog outputs which are electronically balanced and provide line levels with max. + 6 dBu. The module allows connection of amplifiers or other devices with line level input.

AO-1

Specifications	AO-1
Connectors	8 x 3-pole Euro block connectors
Nominal Output Level	+ 6 dBu / 1.55 V
Max. Output level	+ 21 dBu / 8.7 V
Output Impedance	100 Ohm
Min. Load impedance	600 Ohm
D/A Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N) (A-weighted) 118 dB	
THD+N	< 0.005 %
Signal Delay	0.646 ms
Weight	260 g

Digital Input Module DI-1

The **digital input module DI-1** has 8 digital audio inputs which may be AES / EBU, S / PDIF or optical format. Sample rate converters for 32 to 192 kHz operation are provided.

DI-1

Specifications	DI-1
Connectors	4 x 3-pole Euro block connectors 4 x Toslink™ optical connections
Sample Rate Converter (SRC)	high end sample rate converter per channel 32 -192 kHz input to 48 kHz output
Input Impedance	AES / EBU: 110 Ohm; S / PDIF: 75 Ohm
Signal-to-Noise Ratio (S/N)	128 dB
THD+N	< 0.0001 %
Data Format	24 bit linear PCM inputs, 48 bit processing
Signal Delay	low group delay mode: 2.355 ms @ 48 kHz input / 1.588 ms @ 96 kHz High group delay mode: 3.022 ms @ 48 kHz input / 1.922 ms @ 96 kHz
Weight	200 g

CobraNet™ Module CM-1

The **CobraNet™ module CM-1** is a compact interface module for connecting several **P64** devices within one network, allowing the simultaneous transmission of up to 32 digital audio input signals and up to 32 digital audio output signals. The module's two CobraNet™ ports (primary, secondary) may be used for network redundancy.

DSP-1 Extension Module

Should the computing power of the **P64** not be sufficient, it can be increased by 300 MIPS with the **DSP extension module DSP-1**.

CM-1

Specifications	CM-1
Signal Processing, computing power	300 MIPS
Sample Rate	48 kHz
Data Format	48 Bit processing
Signal Delay	0.125 ms
Weight	75 g

DSP-1

Specifications	DSP-1
Signal Processing, computing power	300 MIPS
Sample Rate	48 kHz
Data Format	48 Bit processing
Signal Delay	0.125 ms
Weight	75 g

Crossovers

The **crossover** blocks are available in mono and in stereo versions with between one and five ways. The crossover has got one high pass and one low pass for each way, including the parameters type, frequency, polarity as well as level and mute.

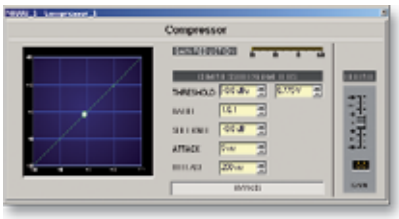
Delay

Delay blocks exist in mono as well as in stereo versions with 10, 100, 500 or 2000 ms maximum delay. The setting of distance and ambient temperature is possible.

Dynamics

The **compressors** (mono or stereo) have adjustable threshold values, attack and release times, compression rates, and partially also soft knee characteristics, output levels and side chain inputs.

The **limiter** (mono or stereo) has tunable threshold values as well as attack and release times.



The **ducker** (mono or stereo) has adjustable threshold values, ducking levels, attack, hold and release times.

The **expander** block contains the parameters threshold, ratio, attack and release times.

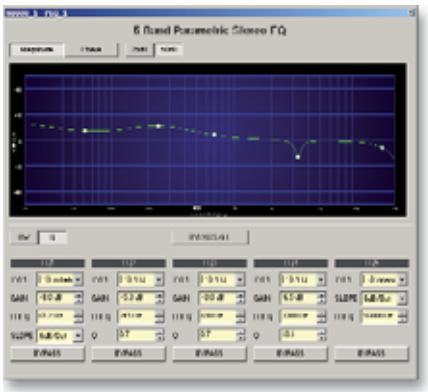
The gate block includes the parameters threshold, attack, hold and release times.

The **ambient noise control** block automatically changes the level of up to four BGM-signals (background music) according to the currently prevailing surrounding or background noise (ambient noise level).

Equalizers

Graphical equalizers are available as mono or as stereo versions with 10, 15 or 31 bands. Additionally, there are two parametric equalizers available.

Parametric equalizers exist in mono and stereo versions with between one and 32 bands. Filter types (PEQ, low/high shelving, low/high all pass) are freely selectable with the parameters gain, frequency, quality/range or slope for each band.



Filters

FIR filters of the type low pass, high pass or band pass all have the parameters filter order, low cut, high cut, and slope.

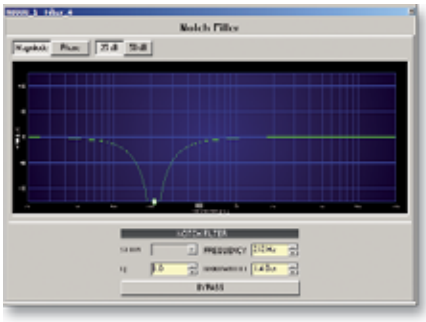
Low pass and **high pass** blocks in mono or in stereo have the parameters frequency, slope and quality.

Band pass blocks in mono or stereo are available with the parameters frequency and quality/range.

Low shelving blocks in mono or stereo have the parameters frequency, slope and gain.

High shelving blocks in mono or stereo have the parameters frequency, slope and gain.

Notch blocks in mono or stereo have the parameters frequency and quality/range.



Tone control blocks in mono or stereo have gain control for bass, mid, treble.

Generators

Tone generators serve for producing a constant sinus signal or a sinus sweep.

Noise generators produce white/pinkish noise.

Inputs/Outputs

The **Analog Input (AI-1**) has 8 analog inputs. Each input possesses a fader, a VU-meter as well as mute and invert buttons.

The **Analog Output (AO-1**) has 8 analog outputs. Each output has a fader, a VU-meter as well as mute and invert buttons.

The **Digital Input (DI-1)** has 8 analog input channels. Each of the four receivers can be switched between AES/EBU, S/PDIF and OPTICAL. Additionally, each receiver has a lock- and an error-LED as well as a display of the sampling rate. Each channel has a fader, a VU-meter as well as mute and invert buttons.

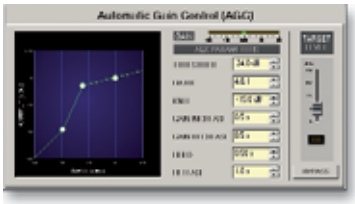
The **Microphone Input (MI-1)** has 8 analog inputs with microphone sensitivity. Each input has a fader, a VU-meter, gain select, mute and invert buttons. Additionally, for each input a phantom feed can be activated.

The CobraNet Input (CM-1) has 8 analog input channels. A CobraNet bundle can be selected either by its number or an assigned name. Each channel has status-LEDs, a word length indicator and a mute button.

The CobraNet Output (CM-1) has 8 analog output channels. A CobraNet bundle can be selected by its number or its assigned name.

Loudspeaker Controller

Loudspeaker Controller blocks exist in mono or stereo versions with between 1 and 5 ways. Each way contains a 6-band PEQ, a frequency switch with polarity, alignment delay and level control as well as a compressor/limiter. Factory-delivered speaker settings can be imported into each loudspeaker controller way, and various parameter settings can be exported as speaker settings.



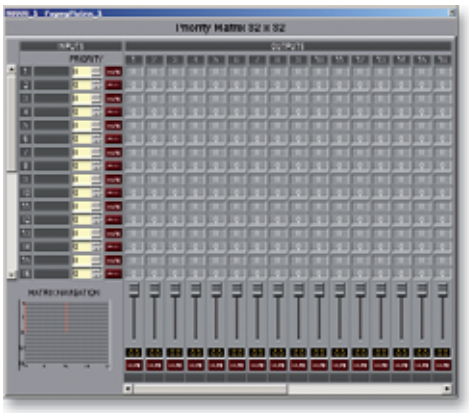
Router, Mixers, Matrices

The **Matrix Mixers** have 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs.
Each in- or output and every matrix cross point has an individual level setter. As many of the existing inputs as desired may be mixed on one or several of the outputs.

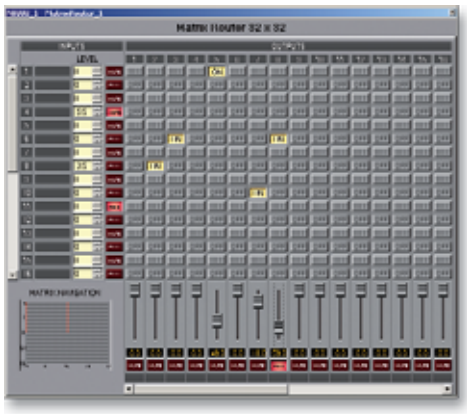
The **Mono** or **Stereo Mixers** have 2, 4, 8, 16, 24 or 32 inputs and 1 or 2 output(s). Each input contains a fader, signal/clipping LEDs as well as mute, solo and invert buttons.
The output channel holds a fader, signal/clipping LEDs and a mute button.

The **Auto Mixers** have 2, 4, 6, 8 or 12 inputs and 1 output. Each input has a fader, signal/clipping LEDs, mute, solo and invert buttons. In each input, de-/activation of the auto function can be selected separately.
The output channel has a fader, an invert and a mute button.

The **Priority Matrix** exists with either 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs.
For each input, a priority can be determined. The outputs and matrix cross points each have their own level setter.



The **Routing Matrix** has 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs. Each input and each output has its own level setter. Each input can be switched to one or more outputs. However, only one input at the time can be activated per output.



Router blocks can have 1, 2, 4, 8 or 16 inputs and 1, 2, 4, 8 or 16 outputs. Each output can be fed by exactly one input source. One input, though, can be routed to various outputs.

TPI-8 and TPI-12

The **TPI** touch screens are operating and display units for convenient control and monitoring of DYNACORD **PROMATRIX® System** with **P64** and **DPM 4000**.

Two models are available with 8.4" (**TPI-8**) or 12.1" screens (**TPI-12**) which are connected via Ethernet and configured by **IRIS-Net™**.

Low depth facilitates both wall mounting and integration into racks and operating consoles. Mounting accessories and a 24 V DC power supply are available separately.

Additional TPI features:

- completely customizable GUI – functional and graphic configuration for all applications via **IRIS-Net™**
- extended life and noise-free operation – no fan or hard disk
- proven server technology – Win XP Embedded™ operating system, industrial quality "Made in Germany"

TPI-8 and TPI-12

Specifications	TPI-8	TPI-12
Supply Voltage	24 V DC +/- 20%	24 V DC +/- 20%
Supply Current	0.7 A	0.9 A
Display Size	8.4"	12.1"
Max. Resolution	800 x 600	800 x 600
Brightness	300 cd/m2	300 cd/m2
Touch Screen	Resistive analog	Resistive analog
Operating System	Windows XP Embedded	Windows XP Embedded
Temperature Range	0 °C … 40 °C	0 °C … 40 °C
Dimensions (w x h x d)	307 x 267 x 50.7 mm	395 x 315 x 56.2 mm
Weight	3.2 kg	5.3 kg
Accessories	WM-TPI-8	WM-TPI-12

PWS-4 and PWS-6

The programmable wall stations (**PWS**) are modular operation panels for DYNACORD **PROMATRIX® System** with **P64**. Typical applications are volume control, source selection, preset switching and room combining.

The operator fronts **PWS-4** and **PWS-6** are designed for single, dual and triple U.S. wall boxes requiring a PWS-C CAN bus coupler.

Additional features:

- a maximum of 3 operator fronts can be integrated into a wall station – easy series connection via cable (included)
- convenient button labeling – mark-up space covered and protected against soiling
- freely configurable via **IRIS-Net™**-buttons and LEDs with user-assignable functions

PWS-4 and PWS-6

Specifications	**PWS-4**	**PWS-6**
Supply Voltage	5 V DC	5 V DC
Supply Current	35 A	30 A
Max. Power Consumption	175 mW	150 mW
Buttons / Keys	4 with green status LED 2 up / down with LED chain (4 green LEDs)	6 with green status LED
Temperature Range	-5 °C … 40 °C	-5 °C … 40 °C
Dimensions (w x h x d)	48 x 105 x 34 mm	48 x 105 x 34 mm
Weight	80 g	80 g

PWS-C

The **PWS-C** CAN bus coupler connects the operator fronts to the CAN bus detecting the manipulation of control elements and sending information to the respective units via the CAN bus.
Information received by the CAN bus is displayed on the operator fronts

Additional PWS-C features:

- a maximum of 3 operator fronts (PWS-4, PWS-6) can be connected – wall stations freely configurable
- baud rate adjustable via DIP switches or software – highly flexible, protects against unintended changes
- integrated terminating load – no external elements required
- easy-binding post connection – dual binding posts for extension leads
- status LED – local diagnosing possible
- 9 - 58V DC power supply input

PWS-C

Specifications	PWS-C
Supply Voltage	9…58 V DC
Supply Current	20 mA @ 24 V / DC
Max. Power Consumption	480 mW
Max. Line Length (CAN)	1000 m
Cable diameter	0.5 … 0.8 mm / 20 – 24 AWG
Temperature Range	-5 °C … 40 °C
Dimensions (w x h x d)	48 x 48.5 x 19 mm
Weight	15 g

DPM 4000

The digital **PROMATRIX®** Manager **DPM 4000** is a modular configured, processor-controlled multi-channel audio control and signal routing system that is meant for incorporation in a wide range of electro acoustics applications (alert systems) as well as in the field of ProSound installations. Because of its outstanding technical specifications – as there are: a dynamic range >100 dB, an excellent overall frequency response of the entire system as well as of each individual component, extensive sound shaping facilities, output delays, etc. – including the system in ProSound applications is easily achieved.
The PC-software which runs under any Windows™ version between the most current and Windows 95 allows configuring all functions and parameters.
Audio signal input modules for connecting up to 16 paging consoles, microphones, mixers, CD-players, AM/FM-tuners, cassette decks, etc. are available.
Each channel is equipped with a comfortable audio processor that provides the following filters:

- Lo/Hi-Shelving EQ
- Lo/Hi-Cut
- Parametric Equalizer

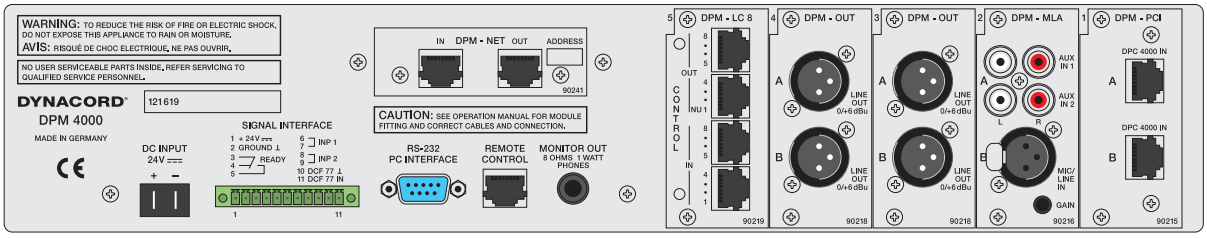
All changes are displayed on the screen and can be acoustically monitored in real time. Optimizing the transmission quality (e. g. linearization, intelligibility, music reproduction) and reducing feedback can be easily achieved.
An integrated floating 8 x 8 Logic Control Matrix allows launching control functions, logic operation and programmed flows via macros.

Safety Features:
The digital **PROMATRIX®** Manager monitors itself, according to IEC 60849 regulations for electro acoustic emergency alert systems. Furthermore, all connected paging stations, power amplifiers, their connection cables, and loudspeaker lines are being monitored.
A RS-485 port is employed to control output relays, LF or control relays, logic inputs and analog inputs and outputs. The optional control and monitoring of the power amplifiers (remote control) is also performed via this terminal. As additional option, it is possible to include an automatic fault-protocol.

On a customer's demand, remote maintenance and servicing is possible. Changing the system's configuration and control functions as well as possible software upgrades can also be performed via modem.
The optionally available line-monitoring module for remote amplifiers controls and guards the speaker cabling and the corresponding loudspeaker systems. Measuring criteria are: ground-fault according to the DIN VDE 0800 regulations, line interrupt, line fault, and impedance. Periodic test cycles can be programmed; evaluation and fault-protocol is automatically performed by the **DPM 4000**.

Available to fulfill special tasks is the successfully proven digital single speaker monitoring module DEC 2600.

The **PROMATRIX®** Manager **DPM 4000** controls messages for several zones at the same time, optionally with pre-gong, via its central system processor.
The automatic attenuation of background music during messages with smooth fade-in when the message ends can be programmed.
Output delays can be set to values between 0 and 330 ms respectively between 0 and 113 meters. In case some lines are busy, a message is automatically recorded and, after the lines are open again the message is being transmitted (option: message-stacking, available in combination with the internal message recorder).



The factory configuration includes:

- Digital 4 x 4 audio mixing matrix with volume controls in all inputs and outputs
- Internally extended matrix for signals and recording / playback
- Parametric 3-band equalizer in all 4 input channels
- 10 control inputs, 7 control outputs; floating, freely definable functions
- Link options for internal and external control inputs and outputs
- RS-232 interface for PC-connection
- RS-485 interfaces for the connection of paging consoles, power amps and the DCS 400 Control System
- Monitor bus and monitor amplifier for power amp monitoring and internal input / output monitoring
- Status-LEDs for fault notification, Power, Ready and DCF 77
- Event scheduler; 2000 individual events can be comfortably programmed
- Electronically programmable fuses for all power supply outputs
- Remote fault indication via READY-Relay
- Power Management for the entire **PROMATRIX System®**

Additional options are:

- Delay in all 4 output channels
- Digital tone oscillator for national and international alert signals, e. g. alerts according to the DIN 33404 regulations, mail service alerts, Slow-Whoop, etc.
- Digital tone oscillator for gong signals (2, 3, and 4 chime gong), attention gong
- Pilot tone generator for internal monitoring and power amplifier monitoring purposes
- Direct digital recording and playback of messages with a length of up to approximately 6 minutes
- DCF 77 control for the main clock
- Modem-support for remote control and remote maintenance
- Interface module for DPM 4000 networking
- System main clock, quartz-controlled, direct connection of up to 40 slave clocks
- Monitoring and protocol-support for all internal and external functions

DPM 4000

Specifications	**DPM 4000**	
Operating Voltage	24 V DC, -10/+30 %	
Power Consumption	12 W	
Characteristics		
Audio Inputs:	electronically balanced	
Nominal Input Level	DPC	775 mV / +0 dBu
	MIC / LINE	1.5 mV..5 V / -54..+16 dBu
	AUX	250 mV..3 V / -10..+12 dBu
Nom. Input Impedance	DPC	20 kΩ
	MIC / LINE	10 kΩ
	AUX	10 kΩ
Characteristics		
Audio Outputs:	electronically balanced	
Nominal Output Level	775 mV / 0 dBu or 1.55 V / +6 dBu	
Nom. Output Impedance	115 Ω	
Frequency Response	20 Hz .. 20 kHz ± 0.5 dB	
Distortion @ 1kHz	< 0.01 %	
Interference Voltage (A)	-97 dBu	
Monitor Characteristics:	headphones unbalanced, loudspeaker bridging operation	
Input	balanced 1.25 V / +4 dBu	
Output Power Capacity	0.5 W / 8 Ω	
Min. Load Impedance	4 Ω	
Interface Characteristics:		
Control Inputs	UIN ≤ ± 5 V = Low	
	UIN ≥ ± 10 V = High	
Control Outputs	floating relay contacts	
	1 A at 24 V DC	
Slave Clock Output	24 V DC, 400 mA, short-circuit-proof	
Serial Interfaces	RS-232, RS-485	
Temperature Range	+5 °C .. +40 °C	
Dimensions (w x h x d)	483 x 88.1 x 340 mm	
Installation Depth without Connectors	340 mm	
Installation Depth including Connectors	410 mm	
Weight	approx. 7 kg	
Finish	anthracite	

NRS 90215 NRS 90216

DPM 4000 Modules

The **DPM 4000** allows for audio connections and system expansions by using different interface modules.
On the backside of the DPM 4000, there are five slots for flexible employment of the various **DPM 4000** modules.
The **DPM 4000** may be equipped with two different input modules containing two audio channels each.

The **DPM 4000** can also be equipped with two output modules with two audio channels each.
The fifth slot is designed for the 8-I/O control module.

Included in delivery are a 2-channel audio output module and the 8-I/O control module.

2-Channel Paging Console Module PCI (NRS 90215)

The 2-channel audio input module PCI is used for the connection of paging stations of the DPC 4000 series.

NRS 90215

Specifications:	NRS 90215
Connections	2 x RJ-45 sockets
Audio Inputs	2, electronically balanced
Dimensions (w x h x d)	37.5 x 81 x 248 mm
Weight	152 g

MIC/LINE + 2-AUX Input Module MLA (NRS 90216)

The 2-channel audio input module **MLA** is made for connecting external audio sources of all types.

NRS 90216

Specifications:	NRS 90216
Connections	1 x XLRF-type / 4 x RC A-type connectors
Input A	2 x AUX, unbalanced, internally summed, 1 x MIC/LINE
Phantom Power	24V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	160 g

NRS 90217 NRS 90228 NRS 90234

2-Channel MIC/LINE Input Module MLI (NRS 90217)

The 2-channel input module **MLI** is made for the connection of external audio sources such as microphones, mixers, and others.

NRS 90217

Specifications	NRS 90217
Connections	2 x XLRF-type connectors
Audio Inputs	2 x electronically balanced
Phantom Power	24V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	160 g

2-Channel-AUX Input Module AUX (NRS 90228)

The 2-channel **AUX** audio input module **AUX** is made for the connection of external audio sources such as CD players, tape recorders, tuners, DAT etc. and is equipped with 8 RCA-type connectors (4 x L/R).

NRS 90228

Specifications	NRS 90228
Connections	8 x RCA-type connectors
AudioInputs	4 x AUX, unbalanced, internally summed
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	150 g

MIC/LINE + Paging Station Module MLC (NRS 90234)

The 2-channel audio input module **MLC** serves the connection of paging consoles of the DPC 4000 series and of external audio sources.

NRS 90234

Specifications	NRS 90234
Connections	1 x RJ-45 socket; 1 x XLRF-type connector
Input A	DPC 4000, electronically balanced
Input B	MIC/LINE, electronically balanced
Phantom Power	24V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	165 g

NRS 90218 NRS 90219

2-Channel LINE Output Module OUT (NRS 90218)

The output module **OUT** is made for connecting power amplifiers with 0 dB or +6 dB input sensitivity.

NRS 90218

Specifications	**NRS 90218**
Connections	2 x XLRM-type connectors
Audio Outputs	2, electronically balanced
Dimensions (w x h x d)	37.5 x 81 x 247 mm
Weight	160 g

Additional conversion kits for DPM 4000

NRS 90208	input transformer for DPC inputs
NRS 90233	input transformer MIC/LINE inputs
NRS 90227	output transformer
NRS 90205	voice-message memory module
NRS 90193	radio controlled DCF 77
NRS 90241	master-slave interface for networking multiple DPM 4000
Various optional functions in the DPM 4000 are activated via software modules. These are in specific:	
SW-Message	speech recording and playback
SW-Delay	output delay
SW-Clock	software clock with slave clock control, calendar
SW-Safety	monitoring, fault protocol
SW-Signals	chime- and alarm signals
SW-line monitoring	speaker line surveillance

8-I/O Control Module LC 8 (NRS 90219)

The control module **LC 8** has got 8 potential-free control inputs and 7 potential-free outputs for logic levels (0 V, 24 V).
An additional output (NU, OUT 1) provides pole switching impulses for connecting up to 40 slave clocks.

NRS 90219

Specifications	**NRS 90219**
Connections	4 x RJ-45 sockets
Logic Inputs	8, floating via opto-coupler, bi-polar
Voltage when the input is LOW	UIN < ± 5 V
Voltage when the input is HIGH	UIN > ± 10 V
Maximum Input Voltage	UIN max = ± 31 V
Logic Outputs	7, floating via relay contacts
Slave Clock Output	pole change impulse / turning impulse
Output Voltage	24 V DC
Dimensions (w x h x d)	37.5 x 81 x 247 mm
Weight	195 g

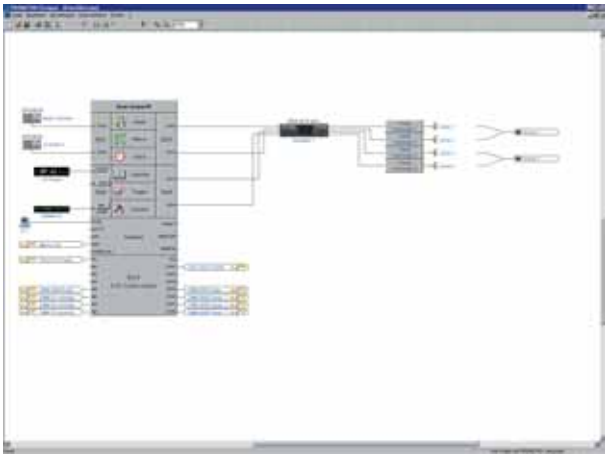
PROMATRIX® Designer

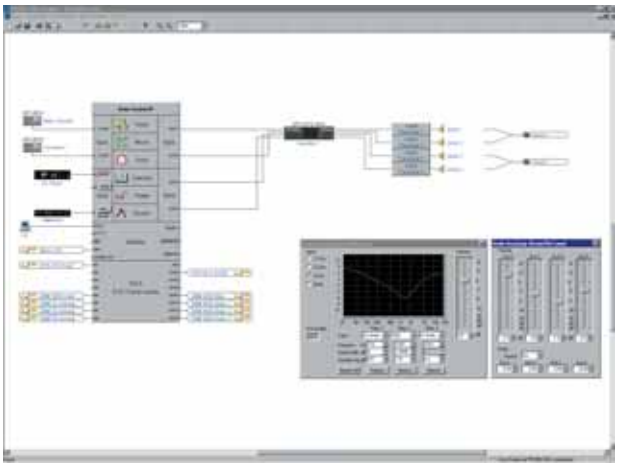
Configuration and documentation of the **PROMATRIX®** System can be accomplished most conveniently and most comfortably by using the system software interface which runs under any Windows™ version between the most current and Windows 95 on any PC or notebook computer.
Altering the configuration is possible at any time without need to interfere with the system's actual set-up.
Saving and retrieving a configuration can also be done whenever desired.
A password protection feature prevents unauthorized access or setting changes as well as faulty operation.

Configuring the system is possible both in on-line or off-line modus. When programmed on-line, the installed DPM 4000 modules and all connected hardware components are automatically recognized. Parameters can be transferred and directly incorporated into the PC program.

The displayed block diagram is manually editable. Parameters can be determined for all function blocks in separate windows.
The system software fulfills a logic check of the configuration which basically eliminates the chance of faulty operations.

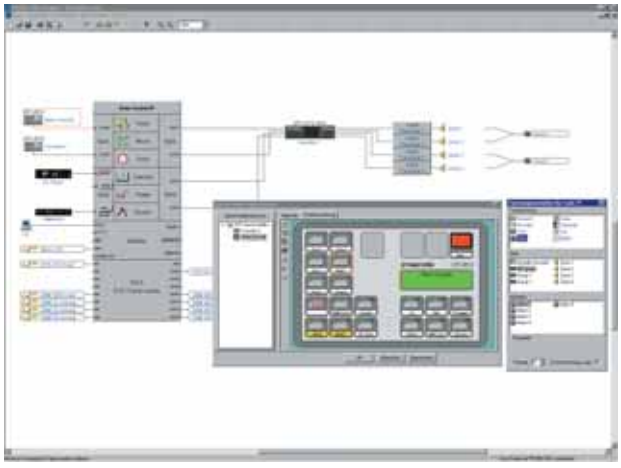
The PC needs to be connected to the system only for loading or for changing a configuration and is not required during regular operation. However, the PC does allow for detailed indication of status information, hard copy protocols, and real-time monitoring functions.





PROMATRIX® Lite

Simple parameter changes can be carried out by using **PROMATRIX®** Lite, a user-friendly software interface, slightly reduced in functions compared to the full version. This program permits changes of level settings, system and slave clock settings, calendar entries (times for the break/pause gong signal), block diagram display, and print-outs as well as the performing of elementary recording tasks.



PROMATRIX® Demo

In order to get more familiar with the **PROMATRIX® Systems** and especially the programming, **PROMATRIX® Demo** provides a software which allows complete configuration of a system.
With this software it is, however, not possible to connect with a system and transfer the configuration to the DPM 4000.

The software **PROMATRIX® Lite** and **PROMATRIX® Demo** can be downloaded from the **PROMATRIX®** homepage www.promatrix.de.

DPA 4410 and DPA 4411

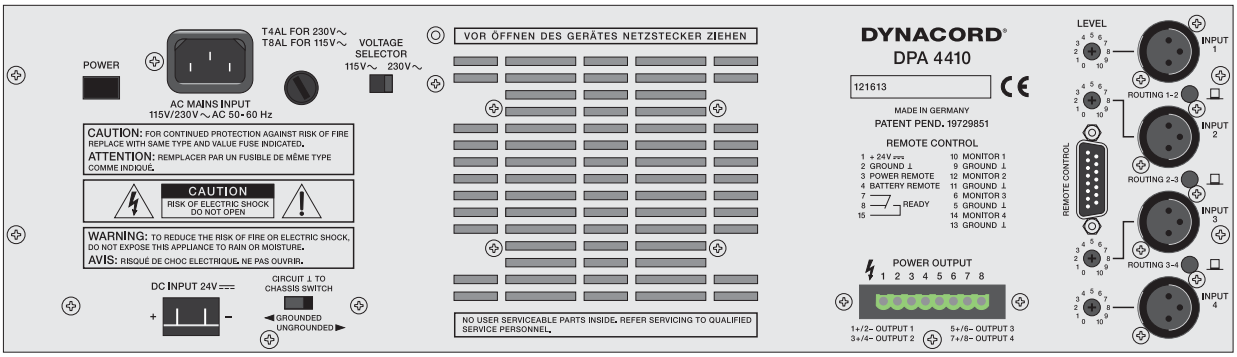
The **PROMATRIX®** 4-channel power amplifier **DPA 4410** and **4411** that follow the newest topology and provide 4 x 100 watts output power according to the IEC 268-3 / 19.4 standard. They are capable of driving high-impedance and low-impedance loudspeaker systems at the same time; i. e. the simultaneous operation of 100 V and 4Ω speaker systems is possible.
The intelligent output design allows following configurations of the four power outputs::

- **4 x 100 W**
- **1 x 200 W and 2 x 100 W**
- **2 x 200 W**

The four inputs are provided as XLR-type connectors (0 dBu) and can be equipped with input transformers. Additionaly provided are routing switches, allowing input coupling.

Remote-starting the power amplifier is possible when it is operated on mains supply or on 24 V DC emergency power supply. It employs an initial current inrush limiter.
When incorporating the in a rack system, to avoid noise-loops, in most cases it is inevitable to separate the circuitry ground from the enclosure. Thus, an integrated ground-lift switch is provided.
Thermal stability is obtained by an active, temperature-controlled, ventilation system.
The silently running fans allow operating the power amplifier even in a control-room environment. Of course, the power amplifiers are idle-protected and short-circuit-proof.
The four output transformers for the balanced, floating loud-speaker network can be optionally internally set to 100 V, 70 V, 50 V, and even 4Ω operation.
LED indicators displaying the amplifier's actual operational status (ready), standby, ground-fault, and thermal overload (protect) as well as LED-meter instruments (–13 dB to 0 dB and CLIP) are provided.
Both amplifier types – **DPA 4410** and **4411** – are generally constructed the same way. In the **DPA 4411**, however, an additional fixed-installed unit is the amplifier remote control and surveillance feature. Control and monitoring of the **DPA 4411** are handled by the **DPM 4000**.

Safety Features:
To be able to use the amplifiers in alarm sound reinforcement systems, it is necessary that in case of probable fault they deliver a message which is in accordance to IEC 60849 standards. Additionally, the DIN VDE 0800 regulation requires ground-fault monitoring for floating, balanced 100 V speaker networks.
The secure floating operation of **DPA 4000** Series power amplifiers is ensured by pilot tone monitoring of the system. This signal is also evaluation criteria for the automatic reserve-switching of the power amplifiers; i. e. when one amplifier fails operating another power amplifier automatically takes over the tasks of the first.
For electro acoustic emergency announcement and evacuation alarm systems it is mandatory that power amplifiers stay functional even in cases of a mains power outage. Since there are only very few cases where an emergency power generator takes over the power supply, amplifiers must provide the opportunity for battery-based operation. All **PROMATRIX®** Series power amplifiers succeed these requirements.



DPA 4410 and DPA 4411

Specifications	DPA 4410	DPA 4411
Power Supply:		
Mains	115 V / 230 V AC, ±10 %	115 V / 230 V AC, ±10 %
Mains Frequency	50 - 60 Hz	50 - 60 Hz
Battery	24 V DC, -10/+30 %	24 V DC, -10/+30 %
Safety Class	I	I
Mains Power Consumption	1010 VA at nominal output 377 VA driven at -10 dB 62 VA no signal	1010 VA at nominal output 377 VA driven at -10 dB 67 VA no signal
24 V DC Power Consumption	18 A at nominal output 7.5 A driven at -10 dB 1.0 A no signal / 2.5 mA in stand-by	18 A at nominal output 7.5 A driven at -10 dB 1.1 A no signal / 2.5 mA in stand-by
Input Characteristics:	balanced	balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Nom. Input Impedance	≥ 10 kΩ	≥ 10 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Nominal Output Power (Mains)	4 x 100 W (acc. to IEC 268-3 / 19.4) 2 x 200 W configurable 1 x 200 W + 2 x 100 W configurable	4 x 100 W (acc. to IEC 268-3 / 19.4) 2 x 200 W configurable 1 x 200 W + 2 x 100 W configurable
Nom. Load Impedance	100 Ω / 100V 50 Ω / 70 V 25 Ω / 50 V 4 Ω / 20 V	100 Ω / 100V 50 Ω / 70 V 25 Ω / 50 V 4 Ω / 20 V
Frequency Response	60 Hz .. 20 kHz	60 Hz .. 20 kHz
Distortion @ 1kHz and Nom. Outp. Power	≤ 1 %	≤ 1 %
Interference Voltage (A)	≤ 1.2 mV / -56 dBu	≤ 1.2 mV / -56 dBu
Monitor Output Characteristics:	unbalanced	electronically balanced
Nominal Output Voltage	2 V / + 8.2 dBu	2 V / + 8.2 dBu
Nom. Load Impedance	600 Ω	600 Ω
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132 x 345 mm, 19" / 3 HU	483 x 132 x 345 mm, 19" / 3 HU
Installation Depth without Connectors	340 mm	340 mm
Installation Depth including Connectors	max. 410 mm	max. 410 mm
Weight	22.3 kg	22.5 kg
Finish	anthracite	anthracite

Extension-kits for the DPA 4410 / DPA 4411

NRS 90206 Pilot Tone Monitoring (for four amplifiers)
NRS 90207 Ground-Fault Monitoring (for four amplifiers)
NRS 90227 Output Transformer (floating, balanced monitor outputs) for DPA 4411

DPA 4140 and DPA 4120

Two single-channel power amplifiers – the **DPA 4120** with an output of 200 watts and the **DPA 4140** offering 400 watts output power capacity, according to the IEC 268-3 / 19.4 standard – complete the **PROMATRIX®** Series.

Offering identical performance features as the four-channel model, these power amplifiers can be included into any electro acoustic sound reinforcement system. It is possible to order the **DPA 4120** / **DPA 4140** power amplifiers either with the standard input module or with a micro-processor-controlled remote control module which enables the full support of their remote control and remote monitoring features.

Control and monitoring are accomplished through the RS-485 remote interface of the **DPM 4000 PROMATRIX®** Manager.

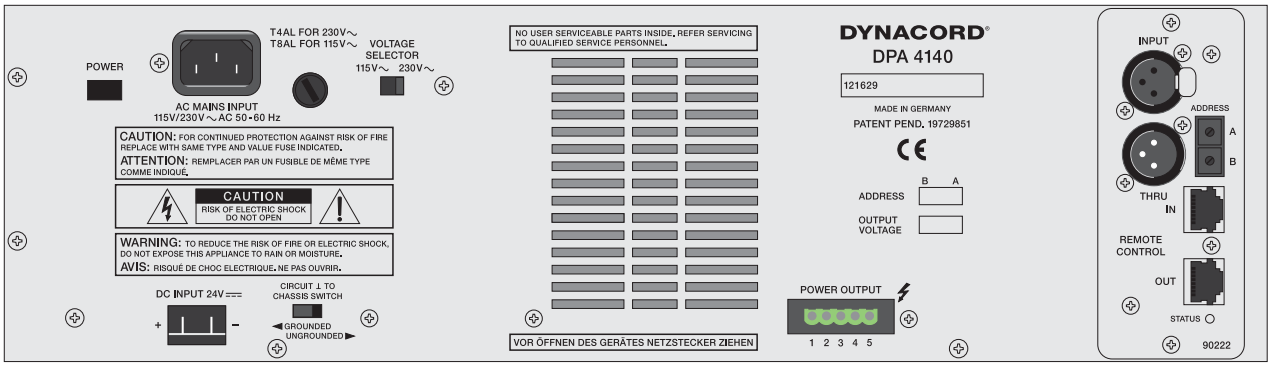
The power amplifiers – **DPA 4120** and **DPA 4140** support the following remote-functions:

Control:

- Input level by the use of a programmable level control
- Mute function
- Mains ON/OFF with programmable, delayed switching
- Battery supply ON/OFF
- Monitor signal routing (input or output) to the monitor bus system
- Pilot tone signal ON/OFF

Monitoring:

- Thermal overload of the power supply unit
- Thermal overload of the power amplifier stage
- Input level
- Ground-fault
- Pilot tone signal
- Output level
- Speaker lines (short-circuit, interrupt, impedance deviation)



DPA 4140 and DPA 4120

Specifications	**DPA 4120**	**DPA 4140**
Power Supply:		
Mains	115 V / 230 V AC, ±10 %	115 V / 230 V AC, ±10 %
Mains Frequency	50 - 60 Hz	50 - 60 Hz
Battery	24 V DC, -10/+30 %	24 V DC, -10/+30 %
Safety Class	I	I
Mains Power Consumption	520 VA at nominal output 200 VA driven at -10 dB 30 VA no signal	1020 VA at nominal output 380 VA driven at -10 dB 44 VA no signal
24 V DC Power Consumption	9.1 A at nominal output 3.7 A driven at -10 dB 0.4 A no signal / 2.5 mA in stand-by	17.3 A at nominal output 7.1 A driven at -10 dB 0.6 A no signal / 2.5 mA in stand-by
Input Characteristics:	balanced	balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Nom. Input Impedance	≥ 10 kΩ	≥ 10 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Nom. Output Power (Mains)	200 W (acc. to IEC 268-3 / 19.4)	400 W (acc. to IEC 268-3 / 19.4)
Nom. Load Impedance	50 Ω / 100V 25 Ω / 70 V 12.5 Ω / 50 V 4 Ω / 28 V	25 Ω / 100V 12.5 Ω / 70 V 6.25 Ω / 50 V 4 Ω / 40 V
Frequency Response	60 Hz .. 20 kHz	60 Hz .. 20 kHz
Distortion @ 1kHz and Nom. Outp. Power	≤ 1 %	≤ 1 %
Interference Voltage (A)	≤ 1.2 mV / -56 dBu	≤ 1.2 mV / -56 dBu
Monitor Output Characteristics:	electronically balanced	electronically balanced
Nominal Output Voltage	2 V / + 8.2 dBu	2 V / + 8.2 dBu
Nom. Load Impedance	600 Ω	600 Ω
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132 x 345 mm, 19” / 3 HU	483 x 132 x 345 mm, 19” / 3 HU
Installation Depth without Connectors	340 mm	340 mm
Installation Depth including Connectors	max. 410 mm	max. 410 mm
Weight	13.2 kg	16.7 kg
Finish	anthracite	anthracite

Extension-kits for the DPA 4120 / DPA 4140
NRS 90222 Remote module (note: not supplied with the DPA 4120/DPA 4140)
NRS 90224 Pilot tone & ground-fault monitoring (note: not supplied with the DPA 4120/DPA 4140)
NRS 90225 Standard input module (note: not supplied with the DPA 4120/DPA 4140)
NRS 90227 Output transformer (floating, balanced monitor output)

DPA 4245 and DPA 4260

Especially designed for permanent installations, the 2-channel power amplifiers – **DPA 4245** and **DPA 4260** – offer superb performance, reliable operation, and uncompromising sound quality.

The power amplifiers incorporate 2 high-performance output transformers each. Next to 100 V, 70 V, and 25 V floating outputs, the direct outputs provide the possibility to also drive loudspeaker systems with low-impedance down to a minimum of 4 ohms. Simultaneous operation of low-impedance speaker systems and floating loudspeaker lines of the power amplifiers is possible as well.

The integrated 45 Hz LO-cut filter with 18 dB/oct. slope protects the connected loudspeaker lines from unwanted ultra-low frequencies.
Comparator circuitry constantly monitors the input and output signals of the power amplifiers and activates their internal limiters whenever non-linear operation is encountered. This reliably protects the connected loudspeaker systems against overload resulting from clipping, saturation of the power supply transformers, and over-voltage at the outputs.

The **DPA 4245** / **DPA 4260** power amplifiers' transmission and sound qualities are absolutely superb.

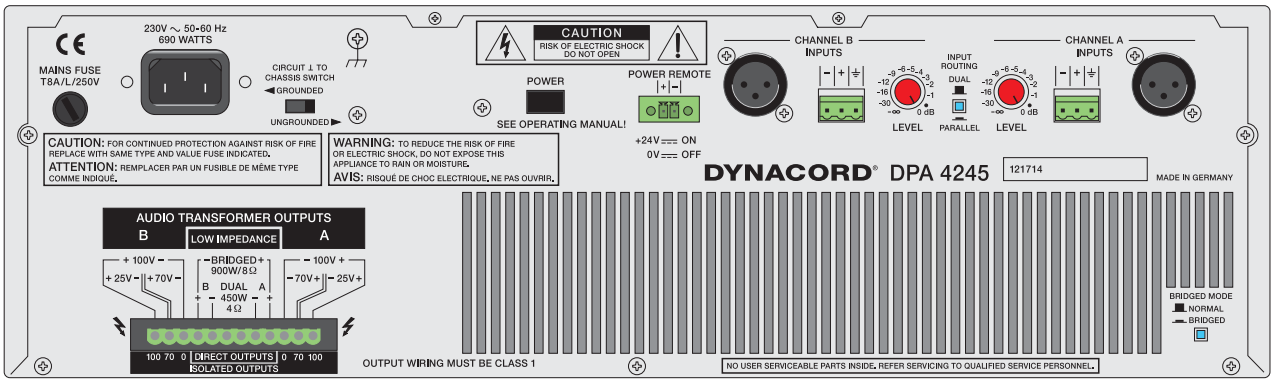
The employed, comprehensively dimensioned power supply units with low-interference toroidal transformers ensure that the stated nominal performance specifications are met even in most demanding and critical installations.

Quick optical information on the power amplifiers' actual operational status is provided through easily readable LED indicators, individually showing whether a channel is ready for operation, signal is present at the output, if any of the limiter circuits and/or one of the protection circuits has been activated.

The inputs are electronically balanced and carried out as XLRF-type and as binding post clamping connectors as well. Input transformers can be optionally retrofitted. Parallel linking the two connector types at the input provides the possibility to utilize the carried-through signals to feed additional power amplifiers, without the necessity for special split-cables. Input Routing switches allow configuring the power amplifiers for stereo, parallel-mono, or bridged-mode operation.

The dB-scaled level controls and a ground-lift switch which helps eliminating ground noise loops by separating the amplifier circuit ground from the common ground of the enclosure, are located on the rear of the appliances. Loudspeaker line connection is provided through a binding post strip where all voltages – 25 V, 70 V, 100 V – and the low-impedance output are present on individual screw-clamp connectors. Starting the power amplifiers remotely is possible via rear panel service mains switches or power remote inputs.

Thermal stability of the power amplifiers is obtained through extremely silent running fans which are automatically switched stepwise, depending on the amplifiers' operation mode while front-to-rear air circulation guarantees trouble-free operation in rack-shelf enclosures of any size.



DPA 4245 and DPA 4260

Specifications	**DPA 4245**	**DPA 4260**
Power Supply:		
Mains	230 V AC / 50 - 60 Hz	230 V AC / 50 - 60 Hz
Safety Class	I	I
Mains Power Consumption	1714 VA at nominal output 635 VA driven at -10 dB 78 VA no signal	2268 VA at nominal output 842 VA driven at -10 dB 131 VA no signal
Input Characteristics:	electronically balanced	electronically balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Input Impedance	20 kΩ	20 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Maximum Output Power Capacity	450 W into 4 Ω	600 W into 4 Ω
Nominal Output Power Capacity	350 W (acc. to IEC 268-3 / 19.4)	500 W (acc. to IEC 268-3 / 19.4)
Nom. Outp. in Bridged-Operation	700 W (acc. to IEC 268-3)	1000 W (acc. to IEC 268-3)
Nom. Load Impedance	28.5 Ω / 100V 14 Ω / 70 V 1.8 Ω / 25 V 4 Ω / 37.4 V	20 Ω / 100V 9.8 Ω / 70 V 1.25 Ω / 25 V 4 Ω / 44.7 V
Frequency Response	45 Hz .. 22 kHz (-3 dB)	45 Hz .. 22 kHz (-3 dB)
Distortion @ 1kHz and Nom. Outp. Power	≤ 0.1 %	≤ 0.1 %
S/N range	> 100 dB	> 100 dB
Protection Circuitry	audio limiter, thermal overload, DC, HF, Back-EMF, peak current limiter, initial current inrush limiter, power-on delay, saturation limitation circuit for the output transformers	
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132.5 x 384 mm, 19” / 3 HU	483 x 132.5 x 384 mm, 19” / 3 HU
Installation Depth without Connectors	377 mm	377 mm
Installation Depth including Connectors	max. 437 mm	max. 437 mm
Weight	ca 20.5 kg	ca 22.5 kg
Finish	anthracite	anthracite

Extension-kits for the DPA 4245 / DPA 4260
NRS 90208 Input transformer (for a single input)

DPC 4550

The paging stations of the **PROMATRIX®** System fulfill all technical requirements of modern communication equipment. They are built from rigid metal enclosures with plastic side-panels. The desktop microphone terminals can be optimally integrated into any modern office environment. Integrating them in a console or 19“ rack-system can be easily accomplished by using optionally available mounting frames.

All **PROMATRIX®** Series paging stations employ integrated micro processors to control their internal functions and the data communication with the central unit. The integrated watchdog-circuit guarantees self-monitoring according to EN 60849 standards while a pilot-tone oscillator guards the analog LF-section.

The microphone pre-amplifier of the Back-Electret-Condenser provides compressor/limiter and offering-logic circuitry. The unobtrusive microphone with internal pop-filter is mounted on a black gooseneck. The paging station offers an additional, external input for the connection of PTT-microphones (Push-to-Talk microphones, handheld microphones with talk-button) with priority function. The input can also be set to 0 dB, allowing the connection of other signal sources, as well.

Reliable protection of the microphone terminals against unauthorized access is provided through password protection. Malfunctioning or erroneous operation is brought to the user's attention through a sound signal that gets generated by the internal piezo.

Intercom functions between individual paging stations can be achieved through connecting an optional loudspeaker which, in case it is included in the system’s software-configuration, can also be used for monitoring purposes.

The handling is according to ergonomic standards. All select-buttons of the paging consoles have status LED-indicators and are freely configurable.

It is possible to program the following parameters: zones, groups, priorities, message and background music volume levels, program-assignment, and special functions. All paging stations employ LC-displays with plain language message indication including: status messages, (multi-lingual) directives, external fault messages, and custom-configured messages. In addition, a password-protected service- and maintenance program can be activated, allowing to check the system's proper operation.

The EN 60849 standards require a closed-circuit-monitored and against erroneous operation protected alarm-button. Thus, the alarm-buttons on the **DPC 4000** Series paging consoles have a protective cover that can optionally be sealed. Optionally incorporating two additional alarm-buttons or key-lock switches is also possible.

Data transfer to the central unit is established via the RS 485 port and, through polling, continuously monitored by the **DPM 4000**. Connection is performed via integrated RJ 45 socket. Function keys for talking, gong signal, text, all (collective call), erase, ON, stop, and program as well as busy and system power-on LED-indicators complete the paging stations' user interface.

DPC 4350

A critical point with most paging terminals is the labeling of buttons. They are supposed to be small in size but also robust to allow their use outside of offices. Frequently, there is not enough space for the attachment of well legible and unambiguous labels which would, especially in emergency situations, help prevent hitting the wrong key. We provide you with an ideal solution: easy labeling through label-strips that are simply inserted underneath the front panel. Easy designing and printing customized label-strips is possible through using the supplied MS-WORD™ (Microsoft Word) template.

DPC 4550 and DPC 4350

Specifications	**DPC 4550**	**DPC 4350**
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	90 mA	90 mA
LF - Input, external		
PTT - Microphone (bridges A & B closed)	-52 dBu	-
Line (default)	0 dBu	-
LF-Output (electronically balanced)	+6 dBu	-
Alarm Key with Cover, sealable	yes	-
DPC 4350 Connection, possible	yes	-
Connection	RJ-45	RJ-45
Connection Cord, supplied	3 m	0.5 m
LC-Display	2 x 16 characters	-
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Dimensions of the Enclosure (W x D x H)	405 x 160 x 65 mm	335 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	-
Weight	2.5 kg	1.9 kg
Finish	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structur

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-lock switch ø 18 mm
NRS 90238	Blinds for rack / console installation (DPC 4550)
NRS 90272	Control speaker (DPC 4550)

DPC 4530 and DPC 4520

Specifications	**DPC 4530**	**DPC 4520**
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	90 mA	85 mA
LF - Input External		
PTT - Microphone (bridges A & B closed)	-52 dBu	-52 dBu
Line (default)	0 dBu	0 dBu
LF-Output (electronically balanced)	+6 dBu	+6 dBu
Alarm Key with Cover; sealable	yes	yes
DPC 4350 Extension Connection	yes	yes
Connection	RJ-45	RJ-45
Connection Cord supplied	3 m	3 m
LC-Display	2 x 16 characters	2 x 16 characters
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Enclosure Dimensions (W x D x H)	320 x 160 x 65 mm	270 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	ø 8 x 200 mm
Weight	1.8 kg	1.7 kg
Finish	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structure

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-lock switch ø 18 mm
NRS 90248	Blinds for rack / console installation (DPC 4530)
NRS 90271	Control speaker (DPC 4530)
NRS 90237	Blinds for rack/console installation (DPC 4520)
NRS 90270	Control speaker (DPC 4520)

DPC 4510 and DPC 4106

Specifications	DPC 4510	DPC 4106
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	80 mA	80 mA
LF - Input External		
PTT - Microphone (bridges A & B closed)	-52 dBu	-52 dBu
Line (default)	0 dBu	0 dBu
LF-Output (electronically balanced)	+6 dBu	+6 dBu
Alarm Key with Cover; sealable	yes	optional
DPC 4350 Extension Connection	yes	yes
Connection	RJ-45	RJ-45
Connection Cord supplied	3 m	3 m
LC-Display	2 x 16 characters	2 x 16 characters
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Enclosure Dimensions (W x D x H)	225 x 160 x 65 mm	170 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	ø 8 x 200 mm
Weight	1.5 kg	1.0 kg
Finish	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structure

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-log switch ø 18 mm
NRS 90236	Blind for rack / console installation (DPC 4510)
NRS 90253	Blind for rack / console installation (DPC 4106)
NRS 90269	Control speaker (DPC 4510)

DMM 4650

The **DMM 4650** digital signal processor with message manager rounds off the **PROMATRIX®** System.
Its 19"-enclosure with 1HU houses the message recorder, alarm signal and gong signal generator, and an extremely versatile sequencer.
The message manager employs a flash-memory that is absolutely maintenance-free and provides the possibility of direct digital recording and reproduction of at least 100 different sound and speech signals.
This also guarantees full compliance with the EN 60849 requirements. Depending on the installed storage capacity, the maximum recording time reaches up to 16 minutes. While recording quality is selectable, the maximum bandwidth is 16 kHz.

The appliance allows direct connection of external microphones or other audio signal sources (CD, tape, Line) and remotely controlling the recording is possible without a problem.
The digital alarm signal generator provides all commonly used national and international alert signals, including: alarm signals for working environments according to the DIN 33404 standard; SOLAS, German Lloyd and IMO (International Maritime Organization) ship alarm signals; alarm BVS - civil service; alarm KTA - radioactive radiation alert; alarm signals of the German mail services.
The digital gong signals generator provides several different signals, including: pre-gong, 2, 3, and 4-sound movie theater gong.

To be able to fulfill specific requirements of our customers, the most important performance feature is the automated, system-controlled launch of sequences which can involve alerts, text messages, gong signals, and "live"-messages (e. g. coming from a paging console at the local fire brigade station) in a free configuration.
Several sequences are pre-programmed and stored in factory-presets to make the handling of such a complex system as easy as possible. These presets include at least 15 acoustical alarm signals, 6 different gong signals and the necessary control procedures.

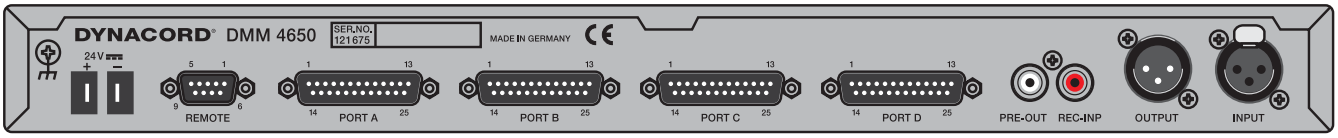
Safety Features :

- Self-monitoring in compliance with the EN 60849 standards; with fault message output
- Password protection over several levels
- RS 232 interface for data backup and servicing purposes
- Integrated service and maintenance software program

The micro processor-controlled **PROMATRIX® Message Manager DMM 4650** employs a separate digital signal processor. The double spaced LC-display provides the user with all important status information and guides him during the configuration through the program menus. Additionally, the amount of used memory gets indicated.

The priority of all procedures is freely definable. In addition to the factory-presets, 40 user-configurable presets are available for programming and storing custom configurations.

All parameters can be edited. The **DMM 4650** provides electronically balanced inputs and outputs that can optionally be retrofitted with transformers.

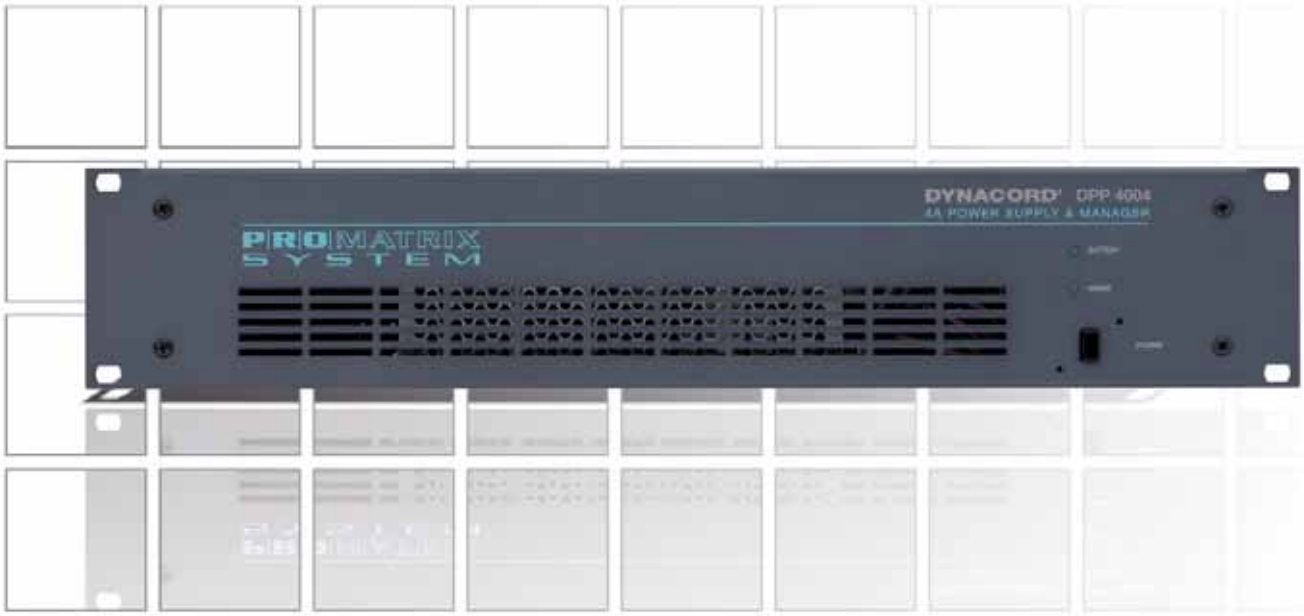


DMM 4650

Specifications	**DMM 4650 Digital Message Manager**
Operating Voltage	24 V DC, -10/+30 %
Power Consumption	18 W (without extensions)
Input Voltage	
Input	775 mV / 0 dBu
Line, Rec Input	775 mV / 0 dBu
Mic Input	1.4 mV / -54 dBu
Max. Input Voltage	
Input	3.8 V / +14 dBu
Line, Rec Input	30 V / +32 dBu
Mic Input	50 mV / -24 dBu
Input Impedance	
Input	20 kΩ
Line, Rec Input	20 kΩ
Mic Input	1.4 kΩ
Output Voltage	
Output	0.775 V / 0 dBu
Pre-Output, Phones	3.2 V / +12 dBu
Max. Output Voltage	
Output	3.8 V / +14 dBu
Pre-Output, Phones	9 V / +21 dBu
Output Impedance	
Output	136 Ω
Pre-Output, Phones	220 Ω
Frequency Response	
Input > Output	20 Hz .. 20 kHz, -3 / 0 dB
Mic-Input	20 Hz .. 16 kHz, -18 / -3 dB
Others	20 Hz .. 16 kHz, 0 / -3 dB
S/N Ratio	
Input > Output	>108 dB (A)
Message	>90 dB (A)
Distortion	
Input > Output	< 0,03 % (@ 1kHz)
Message	< 0,05 % (@ 1kHz)
Data Format	
AD / DA Conversion	16 Bit linear
DSP internal	24 Bit
Sampling Rate	35 kHz
Control Inputs	UIN ≤ ±5 V = Low UIN ≥ ±10 V = High
Control Outputs	floating relay contacts 1 A with 24 V DC
Dimensions (w x h x d)	483 x 43.6 x 225 mm, 19“ / 1 HU
Weight	4 kg

Extension-kits for the DMM 4650

NRS 90204	4 control inputs and outputs for the ports C / D
NRS 90205	Message memory extension
NRS 90210	Output transformer



DPP 4004 and DPP 4012

The power supply rack-units **DPP 4004** and **DPP 4012** have been designed to provide the emergency supply voltage of 24 V DC for a **PROMATRIX®** System. Through their universal performance features, using them together with any other PA-system is possible as well.

The power supply units provide all functions that modern PA-systems require, including: automatic and gapless switching between mains and battery supply as well as remote ON/OFF-functions.

Using the front panel mains switch allows turning the system power off completely. To prevent inadvertent erroneous switching, a cover lid can be installed with the switch being in the ON-position.

For sheer mains operation without remote control functions and without the need for battery supply, both units provide a DIRECT OUT with which the **DPP 4004** can handle a current load of max. 4 A and with the **DPP 4012** of max. 12 A.

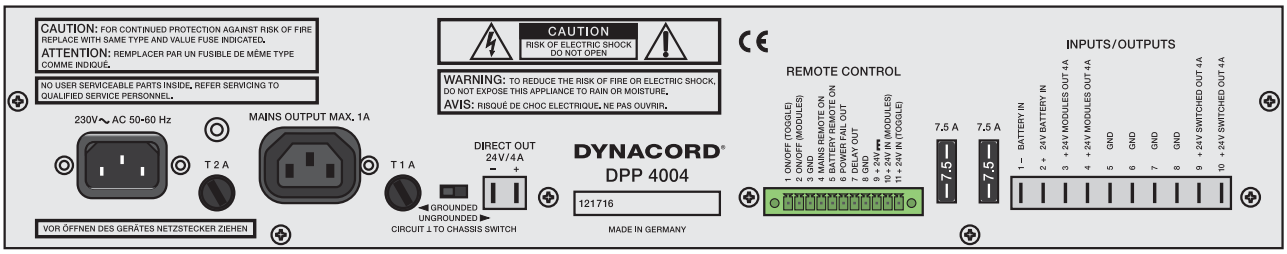
The provided SWITCHED OUT also handles current loads of 4 respectively 12 A and is meant for connecting the **DPM 4000** and other gear that needs gapless power supply.

During normal operation, this output is connected to the internal switch-mode power supply. In case of temporarily power-loss, power-failure, or malfunctioning of the switch-mode power supply, this output is switched to battery supply within fractions of a second, providing gapless power supply for all connected devices. When the mains supply is restored or after solving the problem that caused the mal-function, the appliance automatically returns with a delay of 600 ms to mains operation.

An additional switched output can be utilized for connecting devices which can be switched off during times of power outage or when the system is in stand-by mode; e. g. relay-fields, text-message devices, power amps, etc. Switching off unneeded devices during power failure is preferable, otherwise the battery is unnecessarily strained and wears out earlier.
The output employs a softstart-function that slowly increases the power during power-on, preventing the main supply from interference by possible capacitive loads connected.
All outputs are internally short-circuit-protected and can be operated without loads connected.

Performance Features:

- Primary sync switch-mode power supply that supports any 24 V DC module in PA-systems
- Covered mains switch
- Mains and battery status indicator LEDs
- Initial current inrush limiter / smooth operation
- Short-circuit protected outputs
- Forced ventilation
- Mains voltage 104-127 / 207-253 V AC; internally switchable
- Emergency power supply via battery input connector
- Mains output, switched, via rubber plug
- 24 V direct outputs, gapless switching, remote controlled
- Control outputs for remotely switching between mains and battery supply of power amplifiers
- Output for power failure recognition


CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE AND VALUE FUSE INDICATED.
ATTENTION: REMPLACER PAR UN FUSIBLE DE MÊME TYPE COMME INDIQUÉ.
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
230V~ AC 50-60 Hz
T 2 A
MAINS OUTPUT MAX. 1A
T 1 A
VOR ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
AVIS: RISQUÉ DE CHOC ELECTRIQUE. NE PAS OUVRIR.
DIRECT OUT 24V/4A
GROUNDED
UNGROUNDED
CIRCUIT ⊥ TO CHASSIS SWITCH
DYNACORD
DPP 4004
121716
MADE IN GERMANY
REMOTE CONTROL
1 ON/OFF (TOGGLE)
2 ON/OFF (MODULES)
3 GND
4 MAINS REMOTE ON
5 BATTERY REMOTE ON
6 POWER FAIL OUT
7 DELAY OUT
8 GND
9 + 24V
10 + 24V IN (MODULES)
11 + 24V IN (TOGGLE)
7.5 A
7.5 A
INPUTS/OUTPUTS
1 – BATTERY IN
2 + 24V BATTERY IN
3 + 24V MODULES OUT 4A
4 + 24V MODULES OUT 4A
5 GND
6 GND
7 GND
8 GND
9 + 24V SWITCHED OUT 4A
10 + 24V SWITCHED OUT 4A

DPP 4004 and DPP 4012

Specifications	DPP 4004	DPP 4012
Mains Power Supply		
Operating Voltage	230 V AC ± 10%, 50 - 60 Hz	230 V AC ± 10%, 50 - 60 Hz
Internally selectable	115 V AC ± 10%, 50 - 60 Hz	115 V AC ± 10%, 50 - 60 Hz
Safety Class	I	I
Mains Power Consumption	≤ 20 VA (idling) ≤ 120 VA with nom. load	≤ 25 VA (idling) ≤ 360 VA with nom. load
Battery Power Consumption		
Battery Voltage	24 V -10%/+30%	24 V -10%/+30%
Power Consumption	≤ 0.17 VA (idling) ≤ 4.1 VA with nom. load	≤ 0.17 VA (idling) ≤ 12.1 VA with nom. load
Output Characteristics		
Nominal Output Voltage	24 V	24 V
Nom. Output Current with Forced Ventilation	4 A	12 A
Residual Ripple Frequency	< 100 mV pp	< 100 mV pp
Mains Deviation	± 1 %	± 1 %
Current Carrying Cap. of the Control Outputs	1 A (Mains Remote On) 1 A (Battery Remote On) 0.1 A (Delay Out)	1 A (Mains Remote On) 1 A (Battery Remote On) 0.1 A (Delay Out)
Safety	EN 60065	EN 60065
Noise Suppression	EN 55022 (B) EN 50082-1 EN 6100 4-2...4-6 EN 50204	EN 55022 (B) EN 50082-1 EN 6100 4-2...4-6 EN 50204 EN 61000 3-2...3-3
Temperature Range	+ 5°C..+40°C	+ 5°C..+40°C
Dimensions (w x h x d)	483 x 88 x 330 mm, 19“/ 2 HU	483 x 88 x 330 mm, 19“/ 2 HU
Installation Depth including Connectors	400 mm	400 mm
Weight	7 kg	7 kg
Finish	anthracite	anthracite

DCS 400 Module Series

The **DCS 400** module series increases the possibilities of system control within the **PROMATRIX System®** in many aspects. The DCS system can be extended even after installation in case additional functions are required.
The modules exist in 2 versions:

The **DCS 4xx** board is a circuit board in Europe slot format which can be mounted to the rear panel of ELA rack cabinets or into appropriate junction boxes.

The **DCS 4xx**R modules are mounted into the **DCS 400** mounting frame.

The following modules are functionally identical, but have different designs.

- DCS 401 / 401 R controller board / module
- DCS 408 / 408 R line-relay board / module
- DCS 409 / 409 R LF-relay board / module
- DCS 412 / 412 R logic input board / module
- DCS 416 / 416 R analog I/O board / module

The system includes internal self-resetting fuses for the positive and negative poles. Analog as well as digital regulators may be used in the DCS control system; by expansion of the system functions, additionally relay switching and remote monitoring are possible.

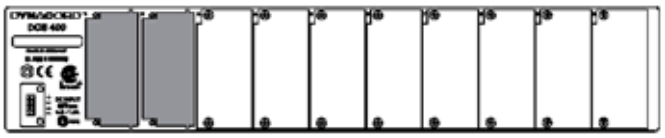
The DCS series includes an audio monitoring field for rack installation for control and monitoring of all channels.

The module system is run by a 24 V DC voltage supply and has secure card edge connectors allowing for quick removal and insertion of any card as well as plug-in binding posts for all contacts.

- DCS 401, DCS 401 R control module
- DCS 408, DCS 408 R relay module 100 V
- DCS 409, DCS 409 R control and LF-relay module
- DCS 412, DCS 412 R logic-input module
- DCS 416, DCS 416 R analog IN/OUT module
- DCS 420 audio monitoring module
- DCS 405 R extension module
- DCS 406 R shielding module
- DCS 407 R LF-relay module
- DCS 421 R spare-device control module
- DCS 422 R LF-input switching module, with pilot tone generator
- DCS 423 R 100 V relay switching module, detection
- DCS ANS automatic volume adjustment module.

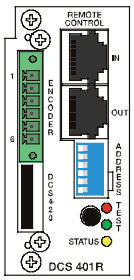
DCS 400 – 19"-Mounting Frames for DCS Modules

The **DCS 400** is a 19"-base unit with a height of 2 HU.
It can host a control module as well as various relay modules, logic input modules and analog I/O modules which are connected via the internal back plane.
In total, there are 10 slots available for the insertion of any desired DCS 4xxR module.



Specifications	DCS 400
Operating voltage	24 V DC, -10 / +30%
Dimensions (w x h x d)	483 x 88.1 x 336.5 mm; 19" / 2 HU,
Weight	5.6 kg

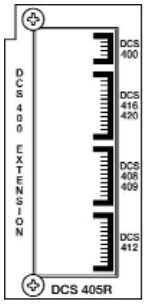
DCS 401 / 401 R Controller Module



The modules **DCS 401** and **401 R** are used as interface for relay boards, logic input boards, I/O boards for analog levels, audio monitoring module and rotary encoders. It is controlled by the **DPM 4000** via an RS-485 remote

Specifications	DCS 401
Dimensions (w x h x d)	160 x 25 x 100 mm
Weight	135 g
	DCS 401 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	207 g

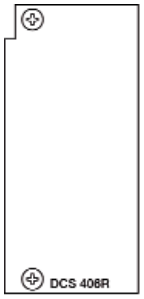
DCS 405 R Extension Module



The module allows the connecting of several DCS 400 rack frames and/or the adaptation of additional DCS 400 boards.

Specifications	DCS 405 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	115 g

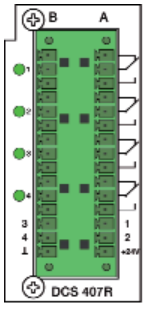
DCS 406 R Shielding Module



The shielding module is meant for the protection and shielding between 100 V modules (DCS 408 R) and LF-modules.

Specifications	DCS 406 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	71 g

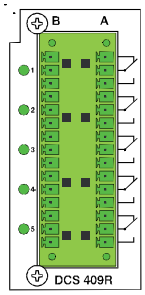
DCS 407 R Remote Control LF-Relay Module



This module provides switching facilities for audio signals (line level) or control outputs independent of any control device, such as the DCS 400 or the DCS 401 R. On the module, there are 4 LF-relays with 2 switching contacts each. Connection is effected via plug-in screw-flange binding posts for all contacts and coils.

Specifications	DCS 407 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	163 g

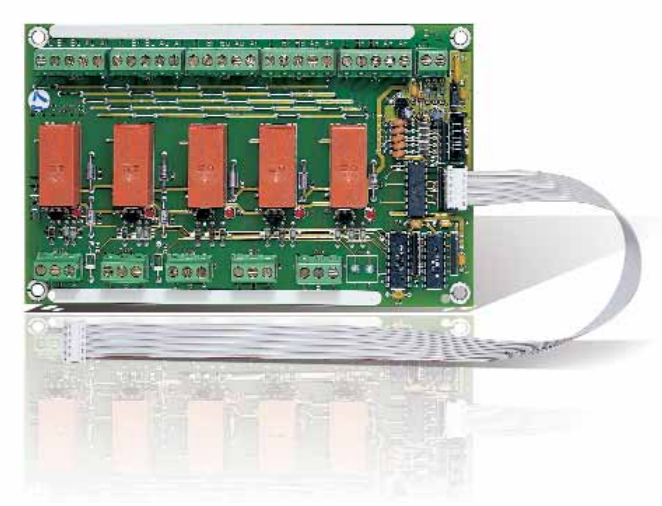
DCS 408 / 409; 408 R / 409 R Line- / LF-Relay Module



These modules offer relay switching contacts for the switching of audio signals and other control functions.
Connection is effected via plug-in screw-flange binding posts for all contacts and coils. There are 5 LF-relays on the modules with 2 switching contacts each.

The **DCS 408 / 408 R** module mainly provides switching of 70 V or 100 V speaker lines. However, it may also be used for supplying additional switching contacts in case of higher voltage or current.

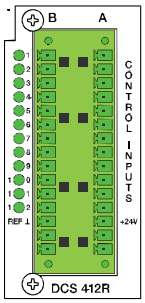
The **DCS 409 / 409 R** provides switching of audio signal (line level) or control outputs.



Specifications	DCS 408
Dimensions (w x h x d)	160 x 20 x 100 mm
Weight	200 g
	DCS 408 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	225 g

Specifications	DCS 409
Dimensions (w x h x d)	160 x 17 x 100 mm
Weight	155 g
	DCS 409 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	185 g

DCS 412 / 412 R Logic Input Module

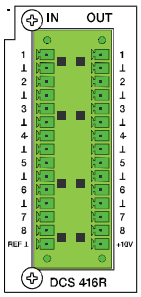


This model offers connection facilities for control lines, push buttons, switches and sensors, allowing the evaluation of their individual status (on/off) in the **DPM 4000** system.

The module has 12 inputs, each of them with selectable polarity. Connecting is made through plug-in screw-flange binding posts for all inputs.

Specifications	**DCS 412/412 R**
Input voltage for off (low)	UiN < + 5 V
Input voltage for on (high)	UiN > + 10 V
Max. Input voltage	UiN max = + 31 V
	DCS 412
Dimensions (w x h x d)	160 x 17 x 100 mm
Weight	110 g
	DCS 412 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	175 g

DCS 416/416 R Analog I/O Module



This module offers 8 analog in- and outputs for control and monitoring functions.
Both, the inputs and outputs are capable of handling 0 to 10 V DC with 256 distinct levels. Potentiometers for volume control can be interfaced using the provided reference voltage output. Additionally, the control outputs provide analog voltages for controlling external devices equipped with analog inputs.
The module has 8 analog inputs and 8 analog outputs. Connection is made via plug-in screw-flange binding posts for all in- and outputs.

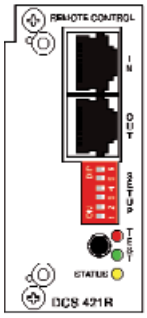
Specifications	**DCS 416/416 R**
Inputs:	
Voltage range (min. – max.)	0 V … 10 V DC
Maximum input voltage	50 V DC
Outputs:	
Voltage range (min. – max.)	0 V … 10 V DC
	DCS 416
Dimensions (w x h x d)	160 x 25 x 100 mm
Weight	140 g
	DCS 416 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	170 g

DCS 420 Audio Monitoring Unit

The audio monitoring unit is a 19“-2 HU device. It provides the acoustic and/or optical monitoring of power amplifier outputs (post-listening) as well as **DPM 4000** inputs (pre-listening) in a **PROMATRIX®** system. The **DCS 420** is controlled by the controller board DCS 401 or the control module DCS 401 R. Switching and displaying of up to 250 audio signal sources as well as volume control take place via buttons on the front panel. For audio monitoring, an integrated loudspeaker and a headphones connector (stereo phone type jack, 6.3 mm), are available.

Specifications	**DCS 420**
Dimensions (w x h x d)	483 x 88 x 103 mm; 19” / 2 HU
Weight	2.1 kg

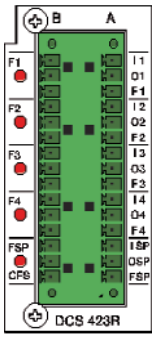
DCS 421 R
Spare-Device Control Module



The control module **DCS 421 R** in combination with DCS 422 R and DCS 423 R modules is used for monitoring control. It can be used for amplifier surveillance with automatic spare amplifier switching or for the permanent speaker-line monitoring. The setting of configuration and service functions is possible via binary switches.

Specifications	DCS 421 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	187 g

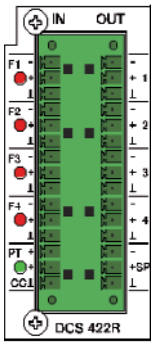
DCS 423 R 100 V-Relay Switching and Permanent Line Monitoring



This module has 4 relays for 100 V switching of the amplifier outputs with pilot tone evaluation. Also integrated are 5 pilot tone detection circuits which may be used either for amplifier surveillance or for the detection of speaker line faults. Connection is established with plug-in screw-flange binding posts.

Specifications	DCS 423 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	ca. 376 g

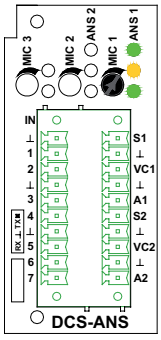
DCS 422 R AF-Input Switching



This module in combination with the DCS 421 R is meant for audio frequency input switching with pilot tone generating and summing.
1 to 4 amplifiers plus 1 spare amplifier can be administrated.
Connection is made via plug-in screw-flange binding posts.

Specifications	DCS 422 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	ca. 212 g

DCS ANS Automatic Volume Adjustment



The **DCS ANS** module (Ambient Noise Sensor) is a modular automatic volume adjustment device. It can be embedded into the DCS-system as independent module. The basic module contains a single-channel volume regulation which may be extended to a 2-channel-mode or even to up to three connected measuring microphone inputs.

Specifications	DCS ANS
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	ca. 200 g

Accessories

NRS 90240	Rotary encoder	**NRS 90278**	ANS MIC module
NRS 90245	Potentiometer	**NRS 90279**	ANS extension module

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